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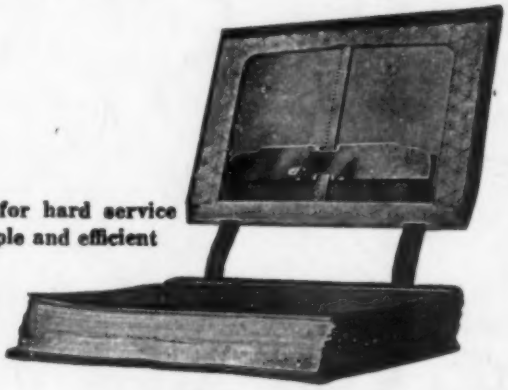

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INFANTRY JOURNAL

Vol. XXXV DECEMBER, 1929 No. 6

The Future of Infantry

CAPT. CHARLES L. BOLTÉ, Infantry

IV[1]

TRAINING

NOT long ago the editorial page of a great metropolitan daily contained the statement that "to call the Infantry the Queen of Battles is as obsolete as to call the pedestrian the king of the road." That statement might be true but for one reservation, and that reservation completely nullifies the statement from a military standpoint. To conceive of infantry of today and of the future as identical in organization, equipment, training, and tactical employment with infantry of 1914, of 1898, of 1864, or of the past centuries, is to justify the editorial charge quoted above, but at the same time is to be blind to the current and clearly pending developments in military thought and activity. There is no more similarity between the infantryman of the Greek phalanx and the so-called foot-soldier of today than between the latter and the pedestrian of the editorial. Nor is it to be expected that the infantryman of today will remain as he is at present.

What is infantry, anyway? What has been the infantry of the past, and what will be the infantry of the future? Perhaps in answers to these questions we might find full justification for the terse statement in our regulations that "the Infantry is the basic arm." The term "foot-soldier" seems no longer strictly applicable, as many an artilleryman can testify who, plodding along beside his caisson, has glanced with envy at the riflemen rumbling along in trucks. Nor does the definition that infantrymen are individually armed soldiers embrace the machine gunner, the howitzer units, and the tanks. Still, standing back and viewing the infantry as an entity, we may conceive that it constitutes that arm of a military force in which the man is predominant, in which the man is the basis, in which the man and not the means of combat forms the characterizing quality. It is the gun which marks the artillery, the horse that makes the cavalry, the plane that characterizes the air service. True, in all these and the other so-called auxiliary arms man is essential as the motivating and guiding force, but he is not the distinguishing feature of the arm as he is in the infantry. It has been said that infantry is essentially manpower, manpower is infantry.

[1] For the first three papers of this important series, see INFANTRY JOURNALS for September, October and November, 1929.

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Perhaps it is well to let the matter rest there. This much we know: the character and constitution of the infantry arm have changed and are changing; they must continue to change or infantry will disappear. We have seen that changes are now taking place in the organization and equipment of infantry, changes so far-reaching as to alter most markedly the entire complexion of the arm. What, then, are the indications of change in the training doctrines within our infantry?

The formulation and recommendation of progressive changes in the infantry training doctrine are no less proper functions of the Infantry Board than are the study and test of new types of organization and new items of infantry equipment. Stationed at Fort Benning, the Board has the cooperation of the Infantry School in the origination of training methods and the critical examination of methods elsewhere originated for keeping the infantry arm abreast of the current developments in the conception and conduct of modern war. Training methods must be kept up-to-date. Training time, whether in peace or war, is limited, and the waste of time devoted to obsolete training subjects or the neglect of new subjects which the modernization of war has forced on present-day armies is a fault, payment for which in blood and gold might prove a grievous burden on our nation. Moreover, the training situation is not and never can be static. The passage of time is inexorable, and the trained soldier of today passes to the scrap-heap tomorrow. The present turnover in our Regular establishment is high, and in any military force will always be considerable. So the expenditure of training time must be economical if a full return is to be expected from the time expended.

A system for prescribing the nature, scope, and extent of the training to be given to the armed forces of a nation must be based upon the type of army into which those forces are, or are to be, organized. In the earlier stages of military history it was the comparatively small, highly-trained professional army that waged the wars dictated by circumstance or the aims and fortunes of the ruler. The conception of the "nation in arms" is a modern one, marking a period which some believe ended with the World War. In 1860 the King of Prussia announced that "the Prussian Army will, in the future, be the Prussian Nation in Arms." The watch-cry of our own national defense today is the "Nation in Arms." And yet many military thinkers are now seriously questioning whether this conception can be maintained in the face of the growing complexity of modern war, the bulky immobility of the vast amorphous masses of partially trained troops which characterized the World War, and the tremendous speed with which present events transpire and are related broadcast through the agencies of the printing press and the radio.

By the rigid restrictions of the Treaty of Versailles, Germany is constrained to limit her armed forces to a mere hundred thousand officers and men, and for these the term of service of the officers is twenty-five years and of the men twelve years. No "citizen army" is permitted. The result is that Germany is being forced into a practical test of the belief in a small, highly-trained professional army from which she departed so long ago. France, on the other hand, adheres to the national army idea with its con-

comitant system of conscription and reserves. Moreover, it is on the Frenchman she relies, counting only to a limited extent upon the manpower of her colonies; nor is this so astonishing when we consider that only one-sixteenth of her mobilized World War forces were of colonial origin. In England today there is a noticeable tendency toward the idea of a small highly-trained and mobile force, duplicated throughout the Dominions, in contradistinction to the conception of the nation in arms. It is toward the development of mechanization and the substitution of machines for men in the bulk that we can look for much of the reason for the growing tendency to depart from the national army idea. It is possible that in America we shall find a happy compromise, since we have no substantial colonial forces, since we have a tremendous reservoir of raw manpower, and since we can be called in truth a mechanized nation.

The fact remains that the scheme and nature of training are entirely influenced by the type of army to be trained. Concentrated, highly technical training must belong to the small professional army, preferably with slight turnover and long service terms. For the citizen army, and for the army mobilized from the peace-time paths of industry and commerce, the purely military training must, because of the shortness of time, be restricted most rigidly to the bare essentials in the interest of economy time.

It has been frequently said that the steady advances in science, invention, and discovery have added greatly to the complexity of modern war, as they have added to the complexity of modern life. There have been added seemingly insoluble problems, to which the solutions appear possible only when the soldier falls back upon his knowledge that the principles of war remain unchanging throughout the constant changes in methods and means. It is this very complexity which has strengthened the query as to whether concentration of training time and resources on a small group of experts will not be more surely productive of success in battle than the distribution of the same time and resources over a vastly larger force, with a resulting lower average of developed fighting ability. On the other hand, the deliberate advocacy of a small, highly-trained and mechanized regular army, concerned with its own development alone, is regarded by the many staunch adherents of the nation-in-arms idea as extremely heretical.

The relation between the peace-time progress of our civilization and the trend of modern warfare is worthy of serious consideration in the formulation of the projects for the training of our infantry. The nature of the daily life of a nation has a direct bearing upon the capabilities of that nation's armed forces in time of war. The American was for long regarded as an expert marksman, and with reason, for his shooting ability was essential to his very existence during the early life of the nation. Today our life is so closely linked with the gasoline engine that it is inconceivable that we should not capitalize our predominance over other nations in that field in the event of another great war. Infantry, and for that matter the entire army of the future, will surely utilize more and more the gasoline motor in movements toward the battlefield and on the field in combat. Mechanization and motorization are no longer conjec-

tures, although as military subjects they are in their infancy.

We are constantly philosophizing on the rate at which life of the present is lived. Everything has speeded up tremendously until such functions as transportation, intercommunication of ideas, and the manufacture of goods are performed with a rapidity and on a scale that would have appalled a citizen of the world in past centuries. These increased speeds have, of course, had their effect upon the conduct of battle, and we find ourselves basing our combat estimates and calculations on speeds of mechanized units far greater than any heretofore believed practicable. One major problem arising from the increased rate and radius of movement is the relation of infantry to mechanized units. How shall we reconcile the slower infantry with the faster tank? Can they operate in close liaison? Our infantry training must include, then, and even be based upon, cooperation with and employment of engine-driven vehicles of both the transportation and combat types.

The speed of aircraft has presented to the Infantry a problem in antiaircraft defense which must have a marked effect upon not only our organization and tactics, but our training systems as well. Air attacks upon infantry columns and bivouacs are launched with but few seconds warning, and in as few seconds have done their work and passed on. We are obliged, therefore, to contemplate offensive action in a third dimension with a promptness and speed reminiscent of the World War gas-defense phrase, "the quick and the dead." As a matter of fact, one of the most difficult things in the formulation of training doctrines and regulations for infantry antiaircraft action is to bear in mind how short is a period of ten seconds, and hence to refrain from prescribing a course of action which would consume many times that period. The matter of antiaircraft training has introduced a new concern to the infantry, has added to the subjects in which the infantry must be trained. How can we expect to train infantry mobilized for war in new and added subjects when our past experience has shown that there never seemed to be time enough to train in the many established subjects. The only possible answer is in the simplification of training requirements, the rigid reduction of the amount of time to be devoted to the less important subjects, and the remorseless elimination of those subjects which have little or no value in the preparation of infantry for battle. The French, for example, have in effect reduced their close-order drill to forward march, halt, the facings, and changes of direction. Contrast this with the hundreds of pages in our training regulations devoted to the complex movements of close-order drill.

The time factor is of controlling importance in the establishment of a training system. Within the peacetime Regular Army there is an average time period for the training of the soldier fixed by experience within rather definite limits. In the other components of the Army of the United States the average training period available for the individual can also be estimated. Upon the approach or outbreak of hostilities it becomes further apparent that the time for training the mobilized forces will be extremely limited. So we are able to start our creation or modification of a training scheme on a basic assumption

of the limited amount of time that will be available. The fundamental question then becomes, How shall we spend the time we have in order to secure the highest return on our investment? It is the answer to this question which the Infantry Board is constantly seeking in connection with the projects for developing our infantry training system.

Not long ago a discussion arose at the Infantry School which pointed to an important aspect in the training of infantry, especially of the smaller infantry units. Briefly, the question was, Shall the leaders of the smaller infantry units be taught or trained in principles or in methods of combat? The proposition of principles versus methods might be loosely paraphrased as mind versus muscle, reason versus habit, tactics versus technique, or initiative versus disciplined obedience. There has always been a paradox in our system of military training as popularly conceived or understood. The cartoonist depicts the tongue-tied lieutenant marching his blindly obedient platoon into a stone wall or over a cliff. The popular belief in the term "prompt unquestioning obedience" is that under no circumstances does the obeyer exercise any reasoning power or determine in any degree by use of his mental apparatus whether he should obey the order given him by his superior. And yet the phrasing "prompt and cheerful execution by subordinates of both the letter and the spirit of the legal orders of their lawful superiors" clearly indicates the necessity for thinking on the part of those same subordinates. Those who recall our announced war-time policy of capitalizing the inherent initiative and independence of the American will realize how the false doctrine of blind unreasoning obedience was frowned upon as fatal to military success.

To illustrate the difference between the teaching of principles and the training in methods of combat, we may use a hypothetical example. Assume that we are to teach a corporal how to reduce a hostile point of resistance such as a machine gun. If, on the ground, we point out the enemy's machine gun position to him and tell him that a certain four of his men, under his control, occupy the attention of the gun by firing at it while the remaining three work around to the right to a position from which they can fire upon, bomb with grenades, or rush with the bayonet, the machine gun position, then we are teaching him one method of attack which fits the particular situation. This method, to use a football simile, may be called formation A.

We may teach more than one such method, each being stereotyped in character.

We can then expect that, faced with the necessity of reducing a machine gun nest in combat, the corporal will select one of the methods he has learned, preferably the one most apt to the particular conditions of the situation. It may, and probably will, be that no one of the methods learned exactly fits the requirements, but an advantage lies in the fact that each man of the squad has learned his part through repeated practice.

On the other hand, if we show the corporal and his men several methods, and then make the underlying lesson clear to them by a discussion of how the method should be varied to fit best the constantly varying conditions of the combat situation, we are teaching the principles, or the tactics. There

is an abstract aspect to this latter training system, and for that reason it is often claimed that the system cannot be satisfactorily applied in a limited training time. The advantage of this latter system lies in the presumption that, having been trained according to its precepts, the corporal will not be handicapped by a change in the number of men or kind of weapons he has at the time, by the fact that the cover for maneuver is on the other flank or does not exist at all, or by the many other conditions which may cause the situation with which he is faced to differ from those situations in which he and his squad were practiced. The disadvantage lies in the need for original thought, for initiative, and for a higher degree of leadership than when we have taught a few set methods.

In the revision of their regulations in 1920 the French, in accordance with what they considered to be the lessons of the war and with their desire to encourage the initiative of their small-unit leaders, sedulously avoided prescribing formal dispositions and tried to teach the principles of tactics. After operating under this system for eight years, they have now reversed their practice. Prompted by the recent reduction in the period with the colors from eighteen months to one year, they have turned to the prescription of a limited number of set formations and the explanation of their employment by the announcement of set rules. They no longer try to teach tactical principles in the small units. They have come to believe that the theory that they should not prescribe habitual formations for the *groupe* (squad) has not held true in the face of the fact that most squads will be commanded in mobilization by Reserve sergeants. For the battalion and regiment, however, they adhere to the belief that their control in combat demands a most thorough understanding of the tactics of the arm.

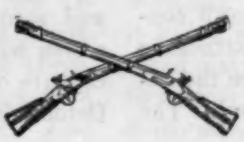
Here, then, we have a specific example of the problem to which our Infantry is seeking the answer. What shall be our attitude toward the training of our squads, sections, platoons, and companies? Our training doctrine must be made to fit, not the Regular soldier primarily, but the citizen soldier who, under our present national defense scheme, will comprise the bulk of our military forces in the event of war and who will be committed to action after an extremely limited period of training. For our Regular establishment we are often prone to forget the instructional function, despite reiterated reference thereto in our regulations and the training programs announced from time to time by higher authority. The oft-repeated statement that the Regular Army is above all things else the instructor of the other components of the Army of the United States is not an empty phrase. And yet knowledge of his subject is only half the prerequisite for an instructor, for ability to impart that knowledge is a *sine qua non*. For example, while the ideal in marksmanship instruction would be to have an expert rifleman who could make experts out of a thousand recruits, short of that ideal it would be better to have a poor shot who could still make the thousand experts, rather than an expert who could not develop in others the desired shooting ability. Ability to command a platoon or company in action is one thing; ability to develop and train a group of such commanders from raw material is quite

another thing. Nor do the two abilities always go hand in hand. As long, therefore, as our theory of national defense is based upon a comparatively small Regular Army which shall provide the nucleus for the nation in arms, we cannot afford for a moment to lose sight of the fact that our peace-time training system must provide for the production of instructors.

How can the Infantry meet the many complex problems that arise in the creation and development of a satisfactorily progressive training system? It sometimes seems as if we were getting nowhere. When we find ourselves dealing with infantry companies that number only a few squads on the drill field; when we are faced with the interruptions and disruptions which the training camps work upon our plans for training our Regular units; when we see the overhead of maintenance robbing us of needed men and training time; when we look upon our five-foot shelf of regulations and professional literature, we wonder how we shall ever develop and train a military force which shall prevail upon the field of battle. We must, therefore, devote ourselves constantly to the simplification of our training system, we must cut and prune our requirements and specifications for the training of our infantry, until we are devoting our limited time and resources only to those subjects that are essential to success in battle.

We have noted above the radical reduction in the present drill of the French Army. We should do well to drop much of our present close-order drill, the movements of which are in fact relics of the actual battlefield maneuvers of the past two centuries, and retain only those movements which are necessary preliminaries to the commitment of troops in action. We need not sacrifice the disciplinary objective; discipline can be inculcated and maintained as well by practice in movements useful in combat as by drills and ceremonies which have no further purpose or use.

The remorseless abandonment, despite custom, tradition, and conservatism, of obsolete and obsolescent forms and subjects is not the only requirement that should mark our development of infantry training. There have arisen, through the modernization of war, subjects new to the training of infantry. An example of these is antiaircraft fire by rifle and machine gun units. Another is the fire from antitank weapons against rapidly moving targets on the ground. The use of gas and smoke has introduced training subjects with which infantry was not concerned before the World War. Tanks, and other armored motor-driven vehicles, have added greatly to the subjects in which infantry must be trained. We must find the time in which to give at least the elementary training in these subjects. We can find it only, in peace or in war, by the most careful surveillance of the training field to be covered and the practice of rigid economy of time in the covering of that field.



Modern Cavalry

MAJ. K. S. BRADFORD, Cavalry

Today we hear much of mechanization and motorization. We even hear that future wars will be machine-fought affairs with combat between humans reduced to a negligible quantity. We of the Infantry believe that important as machinery unquestionably is, it cannot supplant the Doughboy. The present article, written by a Cavalryman, is a justification of that arm based upon facts and not upon theories.—EDITOR.

A SMALL town of low mud houses lay in a depression in the ground protected on three sides in the direction of the enemy by several lines of trenches three miles or more from the town. The trenches had been dug in rough ground and were well provided with machine guns and artillery. They were manned by soldiers noted for their patience, hardiness, and stubbornness in defense. It was four o'clock on a hot afternoon and the defenders of the town had been subjected since daylight to a fierce attack. On the west, the southwest, and the east the enemy had with much effort taken the trenches, but a sector about two miles wide facing southeast remained in the hands of the defenders. This sector was protected on both flanks by dry streambeds with precipitous banks and its occupation prevented the farther advance of the enemy on its flanks. The defenders were resting and waiting confidently for the darkness which would allow them an opportunity for reorganization.

The commander of the attacking force in front of the town, which was the key to a position thirty miles wide, had orders to take it before dark, which would come at about five o'clock. This time limit was imposed on the attacker by the fact that the town contained water, of which the attacking troops had been deprived since the beginning of their approach march. The animals had been without it for thirty-six hours. The situation for the attacker, in spite of his early local success, was critical. There seemed a poor chance that the town could be captured before dark, which would mean that the attacking troops would have to be withdrawn and refitted before making another effort, and that the plan for taking the whole thirty-mile position would fail.

At this moment the commander decided to make a last attempt to capture his objective by throwing his remaining cavalry brigade against the two-mile front of the still untaken trenches. He ordered this brigade, which was resting and feeding its horses six miles to the southeast, to make the charge. It would have to cross on horseback a six-mile stretch of open plain, with very little cover, and attack two lines of trenches protected by riflemen, machine guns, and artillery. It seemed, under modern conditions of warfare, a foolhardy last resort which could result only in the complete annihilation of gallant troops. Another charge of the Light Brigade.

As a matter of fact, the two-mile stretch of trenches was taken. The cavalry galloped into the town, captured and consolidated it before dark, and secured the water supply. The action will be known in history as the capture of Beersheba. It occurred on October 31, 1917, in the Palestine Cam-

paign of the World War. The troops that fought it were the 4th Australian Light Horse Brigade of General Allenby's Egyptian Expeditionary Force.

Upon receiving the order for the attack, General Grant, commanding the brigade, had galloped forward, with his adjutant and his regimental commanders, to reconnoiter a covered line of approach for the brigade and to determine the exact direction of the attack. The 4th and 12th Australian Light Horse Regiments, which were to be in the attacking line, were thus enabled to move forward at a trot without losses and to deploy rapidly abreast in the open about four miles from their objective. Each regiment moved to the attack at the gallop in three successive lines three hundred yards apart, a squadron in each line. The 11th Australian Light Horse Regiment, the third regiment of the brigade, followed as reserve. A couple of Lewis machine guns on pack animals went forward with each front-line regiment, and several others were used to protect the left rear of the brigade as it galloped forward.

The suddenness and unexpectedness of the attack first surprised and then unnerved the Turk. By the time that he had loaded, aimed, and fired his weapons the rapidly moving lines had advanced so far that the projectiles passed harmlessly over the troopers' heads. Those that fell short dropped in the spaces between the individual troopers without effect. In his hurry to get off other shots the defender finally forgot to lower his sights, and many rifles were found after the attack still set at eight hundred yards. A series of thundering waves of horsemen bore down on the trenches at a progressively increasing pace. Just before they surged over him, the Turk noticed that the cavalrymen, having been issued no sabers, were riding with drawn bayonets held in their hands. Only fifteen minutes had elapsed during the four-mile gallop.

The first line of the 4th regiment jumped the trenches (which were not protected by wire) and rode on. The Turks signified surrender, but when the squadron had passed, fired into the backs of the troopers. Just then the second line galloped up, dismounted and finished the Turks with the rifle. The first line cleaned up the enemy's reserves among their tents and dugouts, where the third line, having ridden around the right of the trenches, came to the assistance of its comrades. The first line of the 12th Regiment dismounted one hundred yards in front of the trenches and fought on foot. The second line dashed through an interval in the trench system straight into Beersheba where, assisted by the third line, it fought matters out in the streets. The 12th Regiment soon joined the two others in the town. During the attack, the rear machine guns, assisted by a battery from an adjoining brigade, had silenced some machine guns on a hill in the left rear, which might have raised havoc with the attack. The machine guns then came forward to the town, where the entire brigade was reassembled, an outpost line was put out, and the position was consolidated against counterattack.

The cavalry lost about sixty-four men, half of them killed and half wounded, in the close-in fighting; but it killed several hundred Turks, captured sixty officers (among them some Germans) and one thousand one hundred men, ten field pieces, five ma-

chine guns, animals, and supplies. Most important, the rapidity of the attack did not allow the defender time to destroy the water supply, which he undoubtedly would have done if the attack had been by slower-moving infantry.

This is a modern form of cavalry mounted attack totally unlike the classic boot-to-boot, solid-line charge of Balaklava days. The approach under cover saves unnecessary losses. The distribution of men in width counteracts the intensity of modern fire, while the distribution in depth adds weight to the blow and takes into account the use of more than one line in modern trench systems. The machine gun and artillery support protects the advance and reduces the effect of the enemy's fire, and the consolidation after the attack follows the best infantry practice of today. The action is not in fact a charge, but a mounted attack. It is to the old-fashioned charge what the present infantry attack is to the massed advances on foot of Napoleon's day, what the forward pass is to the line buck of football. It is quick; it aims high; it gains much.

Before Beersheba, all through 1916 and 1917, cavalry had taken an important part in the slow advance of the Egyptian Expeditionary Force from the Suez Canal across the Sinai Desert. Both Magdhaba and Rafa had been captured by cavalry unaided by other troops. Both places, the capture of which was necessary to any further British advance, were twenty-five to thirty miles in front of the main army. Only cavalry could have crossed quickly the intervening arid, desolate space and taken and held the objectives. In these two affairs the cavalry maneuvered mounted, but fought dismounted, like infantry.

After the capture of Beersheba, the whole Gaza-Beersheba line soon fell and the Turks were pursued to Jerusalem, their next defensive position. In the pursuit several successful mounted attacks took place. At Huj, three squadrons of British Yeomanry, under Lieutenant Colonel Cheape—who was a familiar figure on Long Island polo fields before the war when he visited the United States as a member of British polo teams—made a successful mounted attack against the flank of a Turkish rear guard position. In a few minutes, twelve pieces of artillery and four machine guns were captured, the hostile flank collapsed, and a British infantry division marched into Huj without further casualties. At El Mughar, the Bucks Hussars and the Dorset Yeomanry made a mounted attack across two miles of open terrain swept by heavy shell and machine gun fire, against a position on a hill one hundred and fifty feet above the plain. The cavalry attack was made after infantry had failed to advance over the same ground and had asked the assistance of the cavalry. All of the enemy were either killed or captured. The suddenness of the attack, the extended formation, and the speed of the advance amazed the defenders and kept the losses of the cavalry to a minimum. On the next day, moreover, the Yeomanry made a similar and equally successful mounted attack at Abu Shusheh. On December 11, Allenby entered Jerusalem. The imagination of the entire Christian world was stirred.

Then followed a period of several months of comparative rest, during

which the army was reorganized and the menace of flank attacks from the east across the Jordan Valley was stamped out. Relative inactivity was forced on Allenby at this time because several of his divisions were recalled to France to help in stopping the great German drives of the spring and summer of 1918. Nevertheless, the Australian and the Anzac Mounted Divisions made successful raids on Amman and El Salt. The first raid assisted the advance of the Arab forces which had been united by Lawrence east of the Dead Sea, and the second captured El Salt and came within an ace of bagging the Turkish army commander and his staff. On one occasion, two whole brigades of cavalry galloped thirteen miles in an hour and twenty minutes, most of the way under shell fire, but practically without casualties.

In September, 1918, Allenby's infantry broke through the last Turkish fortified area north of the Jaffa-Jerusalem line, and opened up a passage along the coastal plain bordering the Mediterranean. Through this gap poured the Desert Mounted Corps, twenty-five thousand cavalrymen, including the veterans of Beersheba, Huj, El Mughar, and dozens of minor actions in which they had gained an ascendency over their opponents. The objectives were the heads of the retreating enemy's columns. Turning northeast they attacked the Turk wherever found, at Nahr Falick, at Nablus, at El Afule, at Beisan, at Haifa. They captured Nazareth, then Damascus, and finally Aleppo, more than three hundred miles north of Jerusalem. One cavalry division, the 5th, covered nearly six hundred miles in five weeks, fighting as it advanced. The Desert Mounted Corps took eighty-three thousand prisoners and one hundred and sixty cannon. Three Turkish armies were destroyed. The cavalry had gathered the fruits of victory.

On October 31, just one year after the capture of Beersheba, the Armistice with Turkey was signed and one of the four Central Powers retired from the field. The Berlin to Bagdad railroad was cut and the Pan-German bubble burst. It was, perhaps, the most complete victory which ever fell to the lot of a commander. The campaign was the realization of a cavalryman's dream.

Palestine was not the only theater of operations in which cavalry was used extensively, effectively, and often decisively in the World War. To the east of Mesopotamia, in the valleys of the Tigris and the Euphrates Rivers, two brigades of British cavalry, the 7th and the 11th, did extremely useful work. They made the reconnaissance on which the plan of operations was based; by turning the flank of important detachments of the enemy at Ramadi and Khan Baghdadi they caused the surrender of these detachments; and they pursued and captured the remnants of the defeated Turkish Army on their front.

In Macedonia the French Army of the Orient, with some British, Italian, and Greek troops, assisted the Serbian armies to reconquer their country, from which they had been evicted earlier in the war by the Germans and the Bulgarians. A French cavalry force of three native regiments, marching by a circuitous mountain route, completely cut off and caused the capture of the XI German Army of ninety thousand men, and occupied Uskub. This operation led directly to the capitulation of Bulgaria.

In Italy the Italian Cavalry Corps of three divisions played a decisive part in the battle of Vittorio-Veneto which ended hostilities in that theater. It preceded the slower-moving foot troops to the Tagliamento and Isonzo Rivers, seized the crossings and prevented the destruction of the bridges. It attacked the enemy's rear guards and routed them, cut the communications of larger and more important forces, and prevented the enemy from organizing an orderly retreat. The Austrian Army was practically destroyed, its units scattered in disorder. The Armistice of November 4 eliminated it entirely from the field. Thus all three of Germany's allies, Turkey, Bulgaria, and Austria, received the *coup de grâce* at the hands of cavalry.

Earlier in the war, in 1916, Germany had crushed Rumania in a short, swift campaign which lasted only five months. A cavalry corps of two divisions, under Von Schmettow, was fully utilized by the Germans. This corps (either as a whole or in part) at various times during the campaign screened the advance of the German armies, filled a gap between large units, masked the movements of other troops, covered an exposed flank of the army, outflanked the enemy, and pursued him when defeated.

On the Eastern Front in 1914 a single division of German cavalry, the 1st, screened Hindenburg's forces in front of Rennenkampf's First Russian Army so well that Hindenburg was enabled to withdraw practically all the infantry opposed to that army and to envelop and destroy Samsonov's Second Russian Army. This was at Tannenburg in the battle of the Mazurian Lakes. Wherever really decisive results were obtained in the World War, there cavalry was found to have fulfilled its mission.

On the Western Front the cavalries of England, France, and Germany were more important than is generally known. In the first great hammerhead blow which the Germans dealt the allies in their sweep through Belgium, the German cavalry screened the movements of the great masses of troops behind them and concealed the real strength of these masses until they were well on their way to France. The French cavalry, although laboring under ill-advised orders from higher authority which caused it to exhaust its horses by useless marching and countermarching, was the first French agency to report the true extent of the German enveloping movement. The English cavalry in the retreat from Mons heroically offered itself as a sacrifice for the safety of its dismounted comrades of the Old Contemptibles. The 2d Cavalry Brigade, by a combination of mounted and dismounted action against the German right flank, enabled the 5th Infantry Division to withdraw under heavy German pressure from which it was unable to extricate itself. General French attributed the escape of three of his five infantry divisions to the assistance of his cavalry commanded by Allenby, who later used this arm to such good purpose in Palestine.

During the first battle of the Marne the German cavalry filled the gap between the First and Second German armies. It probably prevented a disaster to the whole German right flank, as Kluck's First Army might easily have been cut off, and it undoubtedly allowed the Germans to stop their retreat at the Aisne. The English cavalry pursued and engaged the German

cavalry, but was not strong enough to prevent it from accomplishing its mission. The cavalry of all three nations then took part in what is known as the Race to the Sea, that series of outflanking movements attempted by both sides, which ended in extending their flanks until they rested on the North Sea.

Then came the long period of stabilization which lasted until the fall of 1918, during which the cavalry of these three countries endured a forced inactivity which has given rise to the belief among the uninformed that cavalry is obsolete. The military leaders of each nation, firm in a belief that cavalry would come again into its own when the deadlock was broken, did their best to preserve this arm intact. But the exigencies of war required that cavalry should take its turn dismounted in the trenches, and even that some units should be dismounted permanently.

In 1918 England still maintained a cavalry corps. France had two cavalry corps, the units of which, however, were badly scattered. The Germans had practically no effective cavalry available on the Western Front. The United States Cavalry at this time was disposed as follows: seven regiments had been converted to field artillery and sent to France; four had gone to France and were performing remount work and much-despised military police duty; one squadron of the 2d Cavalry took part in the St. Mihiel and Meuse-Argonne operations; and the remainder had been left at home on the Mexican border. Lack of ship bottoms, especially those equipped for transporting animals, prevented the movement overseas of large numbers of cavalry.

Germany was seriously handicapped by her lack of cavalry in her last big "peace" offensives. Both Haig and Ludendorf admit that when the French and British armies were split apart by the defeat of Gough's Fifth Army in March, 1918, an adequate force of German cavalry could almost certainly have kept the two armies separated and might well have won the war for Germany then and there. Few people realize how narrowly this German victory was averted. The French and British cavalry was useful in stopping the several gaps made in the allied lines during these offensives. On November 11, Allied mounted troops were already ten to fifteen miles in front of their infantry, ready to exploit the success, but the Armistice prevented exploitation.

On a visit last year to the United States, Field Marshal Viscount Allenby, late of Palestine, over his signature in the *United States Cavalry Journal* made the following remarks on the future of cavalry:

> The functions of cavalry have, admittedly, been affected by the advance in modern invention.
>
> Distant reconnaissance has become mainly the business of the air force. Tactical reconnaissance, too, is increasingly being carried out by mechanized means. Tanks, armored cars, and the like have proved their value; their assets—as regards fire-power, mobility, invulnerability, endurance—are real and great; nevertheless, their claims to have superseded cavalry cannot be accepted.
>
> The work of contact and linking up the units on wide battle fronts still falls to cavalry; the eyes of that arm are not hooded, it has clearer vision than the purblind armored car, its mentality is more alert. The more invulnerable the car, the blinder its crew.
>
> The mounted man of today is strong

in fire-power. He has, moreover, the assistance of mechanized vehicles to carry ammunition and war-like stores, thus increasing his mobility. He is not invulnerable; he carries no side-armor; but he is a small mark, and is nimbler than any machine. He is silent as well as swift.

The armored vehicle requires oil, water, petrol in large amounts, spare parts and skilled mechanics, to keep it in working order. Except in arid desert, the horse can subsist on the produce of the country. The horse can live—and do his work—on one good drink in twenty-four hours; he can stand extreme cold and extreme heat. In hot climates the heat of a tank is unendurable to its crew.

In broken country, amid rocky hills, ravines, sand dunes, dense bush, and forest, mechanized vehicles are hampered in movement, and may be brought to a standstill. Cavalry is dismayed by none of such obstacles.

Modern invention has not rendered obsolete the mounted arm. The cavalier retains his old power, his quick intelligence, his aggressive spirit; his good friend, the cold steel, is ready to hand, and has proved itself—in many an emergency—deadly as of yore; and he enlists to his aids the aeroplane, the armored vehicle, and the quick firing gun; giving truly strength and mobility to a degree never before attained.

This is from the pen of the man of all others in the world today who is the most qualified to speak on the subject of cavalry. The United States Cavalry, in its post-war organization, armament, and training, is carrying out his ideas.

A cavalry troop now has (besides the necessary number of specialists, such as mess, supply and stable sergeants, buglers, cooks, horseshoers, farriers, messengers, saddlers and wagoners) four rifle platoons and a machine rifle platoon. Each rifle platoon has twenty-eight troopers, commanded by a lieutenant. Each of these troopers is mounted on a horse and is armed with a saber, a pistol, and a rifle; the saber and the pistol are for mounted use, the rifle is for dismounted use. The saber bears the same relation to cavalry that the bayonet does to infantry; its effect is chiefly moral, but it is useful in the mêlée when fighting is at such close quarters that firearms are dangerous to friend and foe alike; moreover, being never out of ammunition, it is the weapon of last resort. The pistol is the .45 caliber automatic, a weapon coveted in France for individual use by the soldiers of every army. The American cavalryman in the mounted attack fires it straight to the front, thus extending the range of the blow as he advances. The rifle is the same as that used by our Infantry and, although it is a very efficient weapon, will probably be replaced before the next war by a semi-automatic rifle. The machine rifle platoon has eight machine rifles, with the necessary number of men to handle them. These guns are the same as the infantry automatic rifles, but are more stable, as they have heavier barrels and are mounted on bipods and butt rests; they are carried on pack horses equipped with a very superior type of pack saddle of American development. The guns can be used to support a mounted attack, while in dismounted action two guns join each rifle platoon and augment its fire-power.

Commanded by a captain, the troop is a self-sustained unit, which, with its animal-drawn wagons, can move and subsist anywhere. It may be used as a reconnaissance detachment, furnishing patrols which travel at will over rough trails or cross-country. Unlike

the airplane, the troop can penetrate dense woods, darkness and fog. It may furnish security elements, either on the march or at a halt, for larger bodies. It may engage in combat, either mounted or dismounted, and can take and hold terrain features or pursue a defeated enemy. It is the basic unit of cavalry.

A cavalry regiment has three squadrons (or six rifle troops), a machine gun troop, and the necessary administrative units and communication personnel, which include staff officers and clerks, special scouts, pioneer and demolition men, messengers, and radio and panel operators. The machine gun troop has twelve Browning machine guns for ground use and four for antiaircraft purposes and three one-pounders for antimachine gun and antitank fire. These guns with their ammunition and spare parts are, like the automatic rifle, carried on pack animals. The regiment has fourteen motor vehicles of various kinds, principally for reconnaissance and for the transportation of special equipment. When a squadron for any reason is detached from the regiment, it takes with it its proportional share of machine guns, one-pounders, radio sets, and pioneer and demolition outfits. Therefore, both the regiment and the squadron have machine gun support, special weapons to use against machine guns, tanks, and airplanes, and equipment for radio communication, entrenchment, and demolition. Two regiments make a brigade.

The cavalry division has two cavalry brigades, a regiment of 75-millimeter artillery, an armored car squadron, a light tank company, an observation air squadron, an engineer battalion, a signal troop, a train, and the necessary staff, supply, and maintenance agencies. It has twenty-four 75's, thirty-six armored cars, twenty-four tanks and thirteen observation planes, besides all the smaller weapons of its lesser included units, which total one hundred and sixty-one machine guns, twenty-two one-pounders, one hundred and ninety-two automatic rifles, more than five thousand rifles, more than eight thousand six hundred pistols, and nearly three thousand five hundred sabers. This force is supplied by motor trucks, animal-drawn wagons, and pack trains, each in its appropriate sphere. There are nearly an equal number of motors and wagons, more than three hundred and fifty of each, and about two hundred and fifty pack animals. The brigade, when detached from the division, receives its share of the larger weapons from the division just as the squadron receives its share of the smaller weapons from the regiment. The American mounted man has taken advantage of every modern development in automatic weapons and the gasoline motor; surely he is stronger in fire-power and mobility than ever before.

Artillery supports the action of the cavalry division as it does that of infantry. At times the assistance of the tank becomes necessary, although its rate of advance is usually too slow for cavalry. Armored cars quickly search out parties of the enemy in ambush near the road and facilitate the advance of the horsemen. They and airplanes locate the enemy main bodies and direct the cavalry to the sensitive points, thus avoiding undue dispersion of cavalry fighting strength. Engineers repair the roads for the advance of the other elements and lay out defensive works of various kinds, while signalmen supply communica-

tions of every kind, and the division train brings forward from the railhead the supplies necessary for the subsistence of the division. When any or all of these agencies break down, the division can still advance, living on the country, and fighting with the weapons of its smaller units.

The cavalry corps, formed only in war, has three cavalry divisions and corps troops as it may need, such as 105-millimeter howitzers, 75-millimeter pack howitzers, antiaircraft artillery, portée artillery, tractor-drawn artillery, bridge trains, and additional armored cars, airplanes, and tanks. The larger cavalry units are thus partly mechanized and partly horsed. They can advance and fight over any terrain, using paved roads for their motorized elements, country roads for their animal-drawn vehicles, and trails for their pack animals. The smaller included units, the real fighting men, can ride cross-country on horseback, maneuver mounted on the battlefield, and attack the enemy mounted, dismounted, or by a combination of mounted and dismounted action.

Except in a particular type of campaign, in certain country and against a special enemy where cavalry may be auxiliary to no other arm, infantry is the basic arm and *all* other branches are auxiliary to it. Each auxiliary arm, as well as the infantry itself, brings its special characteristics to the combat team. Mobility is the distinctive asset of cavalry and, in a military sense, mobility means more than the mere ability to whiz along the best modern roads at sixty miles an hour or through the air at one hundred and fifty. It is difficult for our urban population to realize that so far only a small proportion of the earth's surface is really industrialized, that machines demand highly organized support, and that the more highly this support is organized the easier it is to disrupt. In war there are often deserts, unbridged rivers, dense forests, mountains, and other obstacles to cross. Maneuvers must be executed in the face of the enemy where awkwardness, noise, and blindness are inimical to success. The troops that must attack the enemy must be able, not only to drive him from his position, but also to seize and hold the position from which he has been driven. Only cavalry—and, of course, infantry—can do all these things. Motors and mechanized vehicles, whether on the ground or in the air, are necessary auxiliaries of armed forces, but when all is said and done the real sinew of war is not wealth, but man—and the horse.

Battle-Sight in 1820

From the Notebook of "General Experience"

THE gunnery books of 1820 prescribed that in firing at an enemy five hundred yards away, the musket should be aimed at least one hundred and fifty feet above the target!

Machine Gun Antiaircraft Training

MAJ. LEONARD R. BOYD, Infantry [1]
and
1ST LIEUT. JOSEPH I. GREENE, 24th Infantry [2]

A STATEMENT of the problems involved in the development of a satisfactory infantry machine gun antiaircraft sight and an account of the work done in this development, with its culmination in the designing and successful testing of the Boyd-Greene sight, are given in detail in the November number of the INFANTRY JOURNAL.[3]

The article also describes the sight and explains its use against various types of aerial targets.

The present article describes the training system developed for antiaircraft marksmanship in which the Boyd-Greene sight is used. It includes the general plan of the training course and brief descriptions of the ranges, targets, sub-caliber device, and range equipment used, all of which are the result of several years of experience in training test groups to fire with various types of experimental sights.

Demonstrations of the training system have brought out the fact that observers to whom the work is new are prone to expect similiar results from firing with the Boyd-Greene sight to those obtained in ground-fire missions. It should be remembered, however, that the greater deliberation frequently used in ground firing is seldom if ever possible in antiaircraft firing, because fire must ordinarily be opened at aerial targets at the moment they appear. This tactical requirement of immediate fire, as well as the physical requirement of greater dispersion in order to make certain a number of hits upon a rapidly moving target, both of which are obtained by the use of the Boyd-Greene sight, makes incorrect the judgment of antiaircraft results on the basis of ground firing. The need for instant fire and for greater distribution of fire against attacking aircraft, with their consequent lessening of possible hit totals, is therefore carefully explained to any group of antiaircraft machine gunners at an early period in their instruction.

Machine gun antiaircraft training has for its object to teach an individual gunner to deliver instant and continuous fire on any aerial target which passes within six hundred yards of him and which may have a speed up to one hundred and seventy miles per hour. The exercises are designed to teach the firer progressively the steps necessary to attain this end. The instructor must bear in mind that the qualities of aptitude and coordination which mark the expert gunner in ground marksmanship are equally requisite in the expert antiaircraft gunner.

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[1] Formerly Test Officer, Department of Experiment.
[2] Test Officer, Department of Experiment.
[3] Page 466.

The best training results will be obtained when all individuals in the antiaircraft training group have previously completed the ground marksmanship course. Such men will be familiar with the working of the gun and the characteristics of its fire.

The progressive, three-phase system of explanation, demonstration, and application is used throughout antiaircraft training. The "coach and pupil" method of instruction is followed in the sighting and aiming exercises.

TRAINING COURSES

Machine gun antiaircraft training is divided into two phases—basic and advanced. The object of basic training is to teach to the individual the theory of machine gun antiaircraft fire, and to afford him enough practice in such fire that he will be able to make hits on every aerial target at which he fires. Advanced gunnery training is designed to teach the individual the method of making the largest possible percentage of hits under a wide variation of target speed and range. The complete training course—basic, advanced, and towed target firing—is required before an individual normally can be classed as an expert antiaircraft gunner. It is questionable whether the facilities of the average post and the ammunition allowances will permit all men in a company to complete the entire course. However, every man should complete the basic training course, and at least two men per squad should complete the advanced training course and, when facilities exist, the towed target course.

It should be borne in mind that one important training phase consists in the application of the principles of aiming while the gun is firing caliber .30 ammunition. The principal value of this firing is to accustom the gunner to the vibration of firing while he follows the aiming procedure. Several methods have been tested in which the gunner fires caliber .22 ammunition

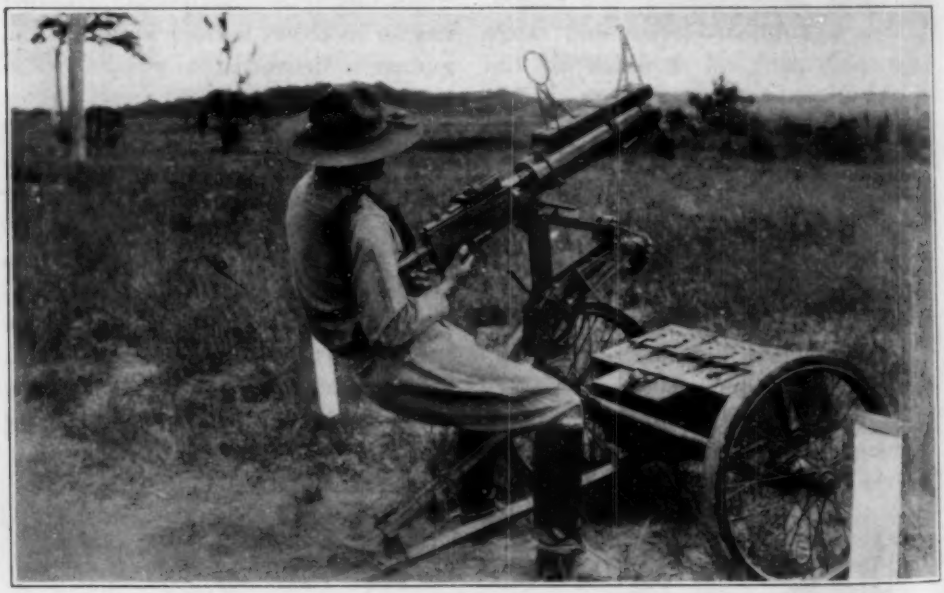


Fig. 1—Firing Position with Tank Shoulder Rest

Fig. 2—Firing Position without Tank Shoulder Rest

while the gun is being vibrated to simulate caliber .30 firing. One successful method was the use of a blank firing device while the sub-caliber firing device was being used.

GENERAL PHASE DIVISIONS

The basic and advanced gunnery phases of the training course may be divided into sighting and aiming and range practice with caliber .22 and .30 ammunition, and towed target firing. The sighting and aiming instruction includes the theory of use of the Boyd-Greene antiaircraft sight and exercises in its use by means of transparent overlays, sighting bar, and the gun in the antiaircraft firing position. Range practice comprises firing at varied stationary and moving targets with the caliber .22 and .30 ammunition. The third division of the course consists of firing at airplane-towed sleeve targets.

FIRST STEP: EXPLANATION OF WORK

The instructor, after assembling the group to be trained, explains the tactical and technical requirements of antiaircraft fire, the object of training, organization of the training, and the training steps. He points out range equipment and explains its purpose. He then demonstrates, using a previously trained group, the method of installing targets, attaching silhouettes, working the moving targets, attaching antiaircraft sights, recording hits, and operating the sub-caliber devices. The instructor also explains the safety measures to be enforced.

SECOND STEP: FIRING POSITION EXERCISE

The instructor explains and demonstrates the details of the firing position, both with and without the modified tank machine gun shoulder rest, as follows: The primary consideration in taking the antiaircraft firing posi-

tion is that the firer must be able to elevate and swing the gun laterally so that the sights are aligned on the fast-moving target as long as it is within range. The gunner's position (as shown on Figures 1 and 2) is such that his weight is exerted against the machine gun in a rearward direction. The gun is elevated by bending both knees while the body is braced to overcome the recoil of firing. Traversing is accomplished by shifting the weight of the body to the right or left. A man of normal conformation will usually traverse to the right by straightening the right knee, thus forcing the rear of the gun to the left. Traverse through an arc greater than one hundred and twenty degrees is usually accomplished by shifting the feet during firing.

The training group then carries out the position exercises, using the "coach and pupil" method, under the supervision of the instructor. The pupil places himself in position at the gun and demonstrates and explains the normal traversing, searching and combined positions, explaining the reasons for each of the variations in the three positions.

THIRD STEP: SIGHTING AND AIMING

BASIC TRAINING—OVERLAYS

The instructor shows the transparent overlays and the target drawings (Fig-

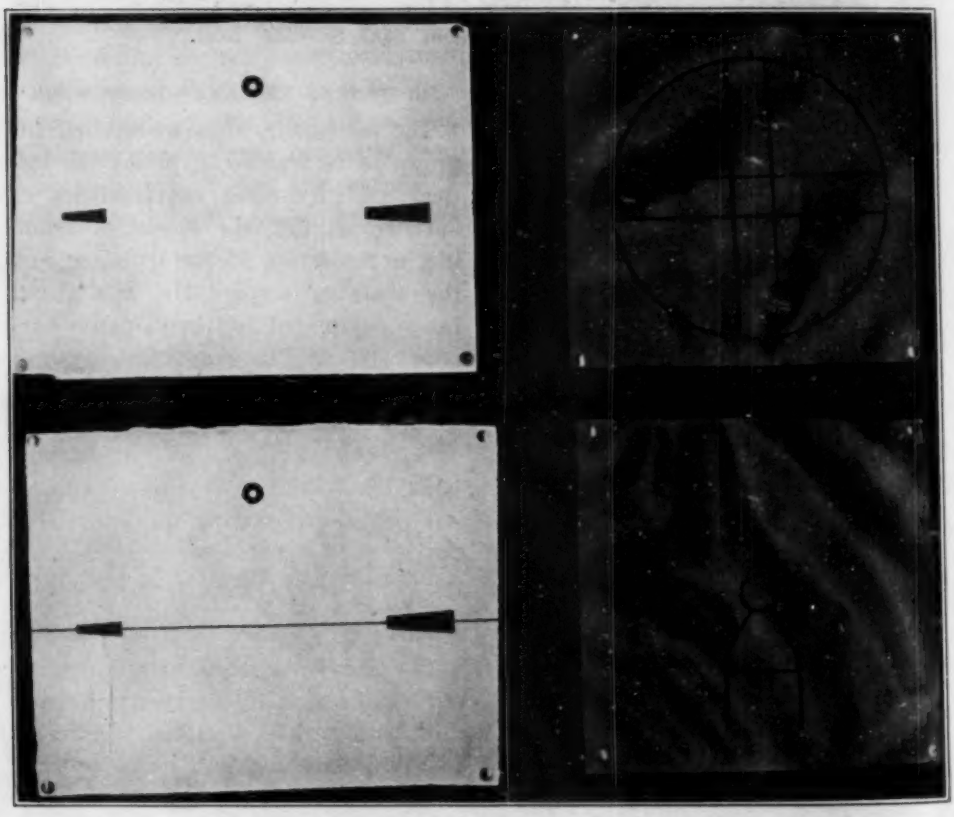


Figure 3

Target drawings Transparent overlays

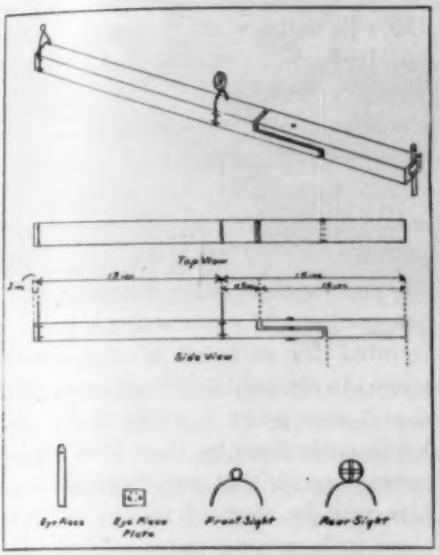


Fig. 4—Construction of Sighting Bar

Wooden Bar: 2"x1"x30" (approximately). Eye Piece: Thin metal (hack-saw blade), ⅛"x7"; hole, ⅛" d. Eye Piece Plate: Thin metal, 2"x1"; holes provided for four finishing nails and two woodscrews. Front Sight: Bent ⅛" wire; circle, 0.75" diam. (outside). Rear Sight: Bent ⅛" wire for circle; guide wires, 30 gauge shipping tag; of same dimensions as antiaircraft sight. Sights held on bar by staples to allow adjustment

ure 3) to the group and explains their use as follows: The front and rear sight overlay sheets represent the enlarged front and rear sights of the Boyd-Greene antiaircraft sight. The overlays are used in the first sighting exercises because the theory of use of the sight can be easily explained and demonstrated to the pupil.

The instructor then demonstrates the use of the overlays, using targets that represent parallel, overhead, oblique, and diving aircraft. He shows the position of the sights at the "commence firing" point and illustrates the correct alignment of the target and sights on the various targets which might be expected to combat.[4] Each member of the group is required to learn and demonstrate the proper use of the sight on each of the typical targets.

FOURTH STEP: SIGHTING AND AIMING

BASIC TRAINING—SIGHTING BAR

The instructor shows a sighting bar (Figure 4) to the group and explains its use as follows: The front and rear sights on the sighting bar represent the front and rear sights, respectively, of the Boyd-Greene antiaircraft sight. The eye-piece on the sighting bar, while not present on the machine gun, causes the pupil to place his eye in such a position that he sees the sights in exactly the same alignment as seen by the coach, when he looks through the eye-piece. The principles of aiming employed in the exercises with the celluloid overlays are followed in the exercises with the sighting bar.

The instructor then places the sighting bar on a firm support and adjusts the sight on the silhouette at two hundred and fifty inches range. The instructor illustrates the commence firing position (target aligned in center of front and rear sight), the midway position in the outward and inward movement of the front sight and the extreme position in the outward movement of the front sight (front sight circle touching the inner edge of the rear sight circle). Each man is required to adjust the sighting bar to illustrate the foregoing positions of the front and rear sights. The parallel, vertical, oblique and diving exer-

[4] The method of use of the sights is shown in detail in the November number of the INFANTRY JOURNAL.

cises employing the overlays are repeated, using the sighting bar.

FIFTH STEP: SIGHTING AND AIMING BASIC TRAINING—CAL. .30 MACHINE GUN

A machine gun, with the Boyd-Greene sights in position, is mounted on an antiaircraft adapter. The parallel, vertical, oblique, and diving exercises employing the sighting bar are repeated, with the pupil simulating fire at the commence firing, midway, and extreme positions of the sights. The coach checks the firing position of the pupil and his method of use of the sights.

FIRING EXERCISES

The sequence of firing exercises is, caliber .22 at stationary targets, similar firing at moving targets, and caliber .30 firing at stationary and moving targets. Each exercise, while employing the basic use of the sights as shown in the first sighting and aiming exercise, includes a new element, so that on completion of the caliber .30 moving target exercise the pupil is prepared to fire at simulated (or real) combat targets.

A scoring system is provided to assist in measuring the proficiency of each gunner. The maximum lead (front sight touching the inner edge of the rear sight circle) results in the bullet hitting twenty-seven inches ahead of the silhouette when the range is two hundred and fifty inches. In the parallel, vertical, and oblique exercises, the scoring area consists of a rectangle twenty-seven inches long and three inches wide (nine three by three-inch squares), the long axis of which is in prolongation of the long axis of the ten-inch silhouette. (Figure 5.) In the caliber .22 exercises one point is counted for each hit in each scoring space; in the caliber .30 exercises (fifty shots) one point is counted for each hit in each three by three-inch scoring space, except that not more than six hits may be counted in any three by three-inch scoring space. In the stationary diving exercises, one point is counted for each hit on the circular silhouette.

The moving diving exercises require a scoring area other than the circular silhouette, due to the variation in range from three hundred and sixty inches to one hundred and twenty inches, while the sights are adjusted for two hundred and fifty inches. The scoring area for these exercises consists of a rectangle twelve inches high and three inches wide (twelve one by three-inch rectangles), the center of which coincides with the center of the circular silhouette. In the caliber .22 exercises one point is counted for each hit in the scoring rectangle, excepting

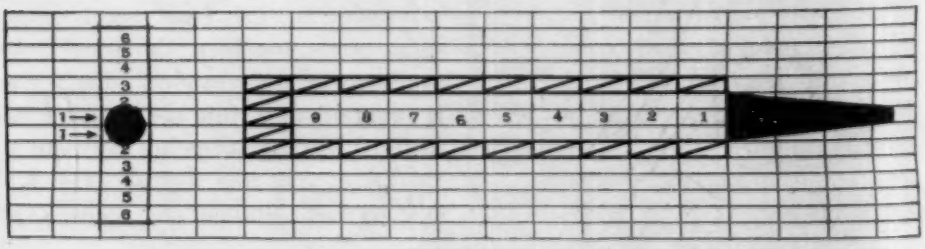


Figure 5

Vertical scoring spaces

Parallel scoring spaces

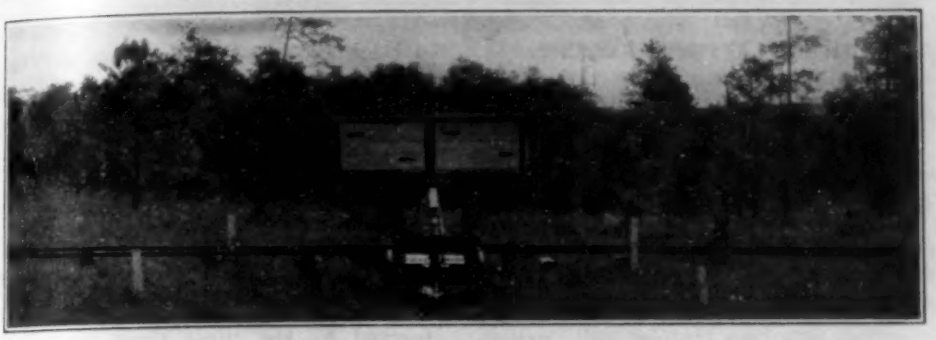


Fig. 6—Set-up of Parallel Range

that not more than two hits may be counted in any one by three-inch rectangle. In the caliber .30 exercises (fifty shots) one point is counted for each hit in the scoring rectangle, except that no more than five hits may be counted in any one by three-inch rectangle.

CALIBER .22 FIRING EXERCISES

A caliber .22 auto-loading rifle, attached to the machine gun, or a special caliber .22 barrel, with cartridge holders, is used in these exercises. The aiming exercises are followed, in general, except that ten rounds are fired in each exercise. The first shot is fired as the front sight circle is centered in the rear sight square; the second shot as the front sight circle reaches a point half-way between the center of the rear sight square and the rear sight circle; the third shot is fired as the front of the front sight circle touches the rear sight circle; the fourth shot, as the front sight circle again reaches the mid-way position; the fifth shot is fired at the "commence firing" position; the remaining shots are fired in a similar manner. Perfect distribution of the ten shots will result in the extreme and center scoring squares receiving all hits. The gun is traversed smoothly and the shots are fired without interrupting this movement.

The foregoing firing procedure is followed in firing at stationary and moving parallel, vertical, and oblique targets. The stationary and moving diving exercises are fired with the circular silhouette held centered in the front sight circle and the rear sight square.

MOVING TARGET FIRING PROCEDURE

The parallel and vertical moving exercises are fired on ranges similar to the parallel and vertical ranges used in rifle antiaircraft training. Figure 6 shows the parallel range. The rate of movement of the target carrier in the machine gun exercises is two feet per second. This speed, at two hundred and fifty inches, corresponds to a target speed, at four hundred and sixty yards, of ninety miles per hour. The target, in passing upward (or across, in the parallel exercises) the twenty-foot firing distance is exposed ten seconds, during which time ten shots are fired.

In the moving, diving target exercises, the target carrier, at forty feet range from the gun, starts moving toward the firer. The rate of movement is two feet per second. At the thirty-foot mark firing is started and ten shots are fired while the target is passing from this point to the ten-foot mark.

CALIBER .30 FIRING EXERCISES

The parallel, vertical, oblique, and diving exercises, fired with the caliber .22 rifle (or special barrel) are repeated, with the following modifications: belts are spaced for bursts of fifty rounds. The rate of sight movement should be such that one outward and inward movement of the sights is completed during the fifty-round burst. An even distribution of shots is desired, and this can be obtained by a smooth movement of the sights while the body of the firer is taking up the recoil of firing.

ADVANCED GUNNERY TRAINING

The unit having completed the basic course in antiaircraft training, a number of the best shots are selected to fire the advanced gunnery exercises. This group is assembled and the instructor explains the object of advanced gunnery. This explanation follows, in general, the discussion on advanced gunnery set forth in the November INFANTRY JOURNAL. The instructor explains the classification of targets in respect to their appearance to the firer (full-length, inclined, and diving targets) and illustrates each type by means of miniature towed targets.

The sighting, aiming, stationary target firing exercises of the basic training course are followed, except for the following changes:

The ten and a quarter-inch silhouette is used to represent a target when its apparent length is greater than one-half its actual length. The three and a half-inch silhouette is used to represent a target when its apparent length is less than from one-half its actual length ("inclined" target).

Each exercise will consist of aiming, or firing, with the "full-length" and "inclined" silhouettes as a separate part of each exercise.

ADVANCED GUNNERY SCORING

The scoring area for the "inclined" target consists of a rectangle three inches wide and nine inches long, formed by the three three by three-inch scoring spaces adjacent to the silhouette. In the caliber .22 exercises one point is counted for each hit in the scoring rectangle, except that not more than four hits are counted in any three by three-inch scoring space. In the caliber .30 exercises, one point is counted for each hit in the scoring rectangle except that not more than seventeen hits are counted in any three by three-inch scoring space.

The scoring space for the "full-length" target exercises consists of a rectangle three inches wide and nine inches long. This rectangle is in prolongation of the "inclined" scoring rectangle and adjacent to it. The method of scoring is the same as for the "inclined" exercises.

TOWED TARGET FIRING

Towed target firing affords the gunner an opportunity to apply to a simulated combat target the aiming and firing principles he has learned in the marksmanship exercises. As a combat firing test, towed target firing is unsatisfactory in many respects. The target is smaller than the combat target. The appearance of the two targets is dissimilar; and, moreover, the movements of a combat target can be only approximately followed by the plane towing the target. This type of moving target, however, is so far superior to any other types, such as

meteorological balloons, rockets, trench mortar shells, or motorcycle-towed targets, that every effort should be made to allow part of the members of the training group, if not all, to prove to themselves that the firing methods taught will result in hits on simulated combat targets.

COURSES TO BE FIRED

The following towed target course should be fired when conditions permit:

a. Vertical (approaching firing point). Elevation one hundred feet or as near one hundred feet as flying conditions permit.
b. Vertical (approaching firing point). Elevation nine hundred feet.
c. Vertical (approaching firing point). Elevation one thousand five hundred feet.
d. Parallel. Ground range one hundred and fifty yards. Elevation one hundred feet (slant range approximately one hundred and fifty yards).
e. Parallel. Ground range three hundred yards. Elevation three hundred feet (slant range approximately three hundred and sixteen yards).
f. Parallel. Ground range four hundred and fifty yards. Elevation six hundred feet (slant range approximatcly five hundred and fifty yards).

FIRING PROCEDURE

The target will be towed past (or over) the firing point three or more times to constitute a "flight," at the completion of which the target will be dropped and the hits counted.

Each gunner will be allowed one belt (two hundred and forty-nine rounds) of ammunition for each flight. Belts will be spaced so that three groups of eighty-three rounds are contained in each. One burst of eighty-three rounds (maximum) will be fired during each passage of the target. Each group of eighty-three rounds will be loaded (if tracer ammunition is available) with three rounds of tracer to start, followed by twelve rounds of ball, and thereafter three tracer and twelve ball. The use of tracer ammunition is desirable, though not essential, as it permits observers to detect major errors in the gunner's use of the sight.

The limits of the field of fire should be plainly marked, the limits pointed out to all firing personnel, and men with whistles placed in prolongation of the "commence firing" and "cease firing" line to start and stop firing.

The pilot of the towing plane must be instructed not to tow the target directly over the firing point when the target elevation is less than five hundred feet, as the towing cable is frequently cut and at low elevations may drag through the firing position.

Firing personnel will be instructed never to aim at the towing plane, whether the gun is loaded or unloaded. Guns will be loaded only in sufficient time for the gunner to lay on the target before it enters the field of fire. When the target is approaching the firing point, firing will not be started until the towing plane has reached a position approximately overhead.

Direction lines for parallel flights will be laid at ranges of one hundred and fifty, three hundred, and four hundred and fifty yards from the firing point. These lines may consist of strips of target cloth or spaced six by six-foot targets laid flat on the ground.

A system of visual (or wireless) signals is required for indicating to the pilot the desired direction and elevation of the flight. Other simple instructions should be included in the scheme.

The towing plane should use one thousand five hundred feet of cable in all flights in order to insure safety for the pilot and to allow at least ten seconds of fire when the target is towed toward the firing point.

All guns should be test fired in advance for functioning at high angles of elevation. The "shock absorbing" group should be thoroughly checked and a caliber .30 antiaircraft driving spring substituted for the caliber .30 driving spring. When caliber .30 antiaircraft driving springs are not available, additional pieces of caliber .30 driving springs may be used in order to insure a rapid rate of fire at high angles of gun elevation.

The prolonged firing with short cooling periods soon raises the water to boiling temperature. Provision should be made for frequent replenishment of water and occasional drainage of the cooling device and substitution of cool water.

A careful check should be made of all ammunition fired in order to arrive at the percentage of hits made.

All bullet holes in the towed target are counted as half of a hit. An odd number of bullet holes is counted as the next larger even number of hits (eleven holes are counted as six hits). While it is apparent that many bullets make but one hole in the cloth sleeve, it is very difficult to judge whether a bullet has made one or two holes. Bullet holes in the sleeve target should be plainly marked when counted, to insure accurate count when the target is used again.

The gunner should use his left hand to fire the gun, steadying the gun with his right hand and leaving the latter available to reduce instantly a stoppage due to failure to feed. During this reduction of stoppage he should keep his sights aligned on the target ready to fire when the stoppage has been reduced.

If adverse wind conditions cause the target to be obscured by the smoke of firing, or if the gunner "loses" the target for any reason, he should cease firing, re-lay on the target, and resume fire.

Observers of fire should stand in rear of and near the gun, in order to reduce to a minimum the optical illusion of the tracer bullets.

The following firing tables may be helpful:

FIRING TABLES

Table I

Caliber .22—Target Stationary—Basic Training

Silhouette	*Target Direction*	*Time*	*Shots*
10¼"	Parallel	None	10
Do.	Do.	Do.	10
Do.	Vertical	Do.	10
Do.	Oblique	Do.	10
Do.	Do.	Do.	10
3½"	Diving	10 Seconds	10
		Total	60

Table II

Caliber .22—Target Moving—Basic Training

Silhouette	*Target Direction*	*Time*	*Shots*
10¼"	Parallel	10 Seconds	10
Do.	Do.	Do.	10
Do.	Vertical	Do.	10
3½"	Diving	Do.	10
		Total	40

TABLE III

Caliber .30—Target Stationary—Basic Training

Silhouette	*Target Direction*	*Time*	*Shots*
10¼"	Parallel	10 Seconds	50
Do.	Do.	Do.	50
Do.	Vertical	Do.	50
Do.	Oblique	Do.	50
Do.	Do.	Do.	50
3½"	Diving	Do.	50
		Total	300

TABLE IV

Caliber .30—Target Moving—Basic Training

Silhouette	*Target Direction*	*Time*	*Shots*
10¼"	Parallel	10 Seconds	50
Do.	Do.	Do.	50
Do.	Vertical	Do.	50
3½"	Diving	Do.	50
		Total	200

TABLE V[*]

Caliber .22—Target Stationary—Advanced Training

Silhouette	*Target Direction*	*Time*	*Shots*
10¼" F. L.	Parallel	10 Seconds	10
3½" I.	Do.	Do.	10
10¼" F. L.	Vertical	Do.	10
3½" I.	Do.	Do.	10
10¼" F. L.	Oblique	Do.	10
3½" I.	Do.	Do.	10
		Total	60

TABLE VI[*]

Caliber .30—Target Stationary—Advanced Training

Silhouette	*Target Direction*	*Time*	*Shots*
10¼" F. L.	Parallel	10 Seconds	50
3½" I.	Do.	Do.	50
10¼" F. L.	Vertical	Do.	50
3½" I.	Do.	Do.	50
10¼" F. L.	Oblique	Do.	50
3½" I.	Do.	Do.	50
		Total	300

[*] F. L. in Tables V and VI indicates "Full Length."
I. in Tables V and VI indicates "Inclined."

Some Shooting!

From the Notebook of "General Experience"

DURING the course of the World War the United States Army fired sixty-five million rounds of seventy-five and one hundred and fifty-five millimeter shell.

Beach Firing—Machine Gun Target Practice

CAPT. GEO. A. HUNT, 27th Infantry

ONE of the most interesting features of training for the troops of infantry rifle companies of the Hawaiian Division is the beach firing in machine gun target practice.

Rifle companies of the Hawaiian Division are equipped with machine guns and participate in a special machine gun target practice each year.

They spend one week on the one thousand-inch range and one week at beach firing. In addition, selected men from each company fire at balloon targets and at targets towed by airplanes.

After the firing on the one thousand-inch range, which is conducted by battalions, each battalion moves to the beach at Haleiwa—nine miles from Schofield Barracks—and establishes a camp. A schedule of firing by companies is arranged, and preliminary and record firing are conducted under the supervision of the battalion commander.

The regimental machine gun officer prepares the instructions for beach firing. He makes arrangements for the supply of special targets, floats, and mechanical equipment.

A motor boat tows the floating targets out to sea and a truck pulls them back to the beach.

As soon as all is ready on the beach for the firing to begin, the motor boat draws the targets straight out from the beach, until a mark on the paying cable indicates one thousand yards, which usually takes about thirty minutes. A man on shore then waves a large white flag and the motor boat drops the trailing targets and moves to a flank at top speed, clears the

"Ready on the Firing Line"

Changing Targets on the Float

danger zone, and circles toward shore to be ready to pull its next load.

The truck moves out slowly as the targets are released from the motor boat. When the targets have come to about eight hundred yards from shore the machine guns open timed fire on them. There is no firing after the targets come to within five hundred yards of the shore.

On shore a detail of eight men keeps busy taking floats from the cable as it comes in. On account of a series of coral reefs in Haleiwa Bay numerous floats are necessary to keep the cable from getting tangled and upsetting target floats. The cable floats have to be detached quickly to keep them from reaching the pulley at the bend of the cable, and they have to be attached to the cable as it follows the targets seaward.

The time required to pull the targets to shore is fifteen minutes, and during another fifteen minutes targets are changed on the floats, scores are marked, and pasted targets are made ready for the next change. One complete operation of the targets takes forty-five minutes.

The machine gun positions are carefully prepared with T-bases on sandbags, and with stakes to keep the fire within safety zones. The coral sand of the beach does not furnish a stable base for the T-bases without well filled sand bags and some scrap lumber revetment.

The two guns of a section are placed ten yards apart, and both guns fire at the same target. One-half of the total score on the target is the record for each gun.

Three methods are in vogue for firing at the approaching targets. One company prefers to hold fire until the targets get within a range of from seven hundred and fifty to five hundred yards and fire with long bursts; another company gets good results in firing short bursts at all ranges, lowering the elevation in searching fire with one gun at a time; and a third company gets excellent results by having one gun ready to fire on the target

while at long range and the other gun set to fire as the target approaches the shorter range.[1]

The novelty of the beach firing appeals very strongly to the men, who enjoy it as a game. A prize competition keeps them interested; and at the close of the season the week of beach firing has been more of a vacation than strenuous target practice.

[1] Company "C," 27th Infantry, used the third method described in the foregoing article, and qualified 32 experts and eight first-class gunners, out of the 40 men firing the course. This company scored an average of 20 points per man higher than any other company of the 1st Battalion.

Condensed Summary of the American Revolution

From the Notebook of "General Experience"

1775—First skirmish at Lexington, April 19.
Battle of Bunker Hill, June 17.

1776—Declaration of Independence, July 4.
Howe defeated Washington at Brooklyn, August 27.
Howe defeated Washington at White Plains, October 28.
Washington overwhelmed Hessians at Trenton, December 26.

1777—Washington defeated Cornwallis at Princeton, January 3.
Hessians beaten at Bennington, August 16.
Howe defeated Washington at Brandywine, September 11.
Burgoyne surrendered to Gates at Saratoga, October 17.

1778—Washington won battle of Monmouth Court House, January 28.

1780—British badly defeated at Kings Mountain, October 7.

1781—Morgan defeated Tarleton at Cowpens, January 17.
Cornwallis defeated Greene at Guilford, March 15.
Rawdon defeated Greene at Hobkirk Hill, April 25.
Cornwallis surrendered to Washington, October 19.

1783—Cessation of hostilities proclaimed by Washington on April 19, exactly eight years after Lexington.
Peace concluded at Versailles, September 3.

Featherweight Fighting Vehicles

LIEUT. ROBERT J. ICKS, Infantry (Tanks) Reserve

A CURIOUS thing has been taking place in the development of armored fighting vehicles. Tank types have been getting smaller while armored car types have been getting larger.

During the World War, the British tanks continued to grow until we reached the limit in the composite British-American Mark VIII, a truly ponderous vehicle for land warfare. The Medium "A" of Whippet increased in size to the Medium "C." Then, after the war, came a new tank that embodied the best of what had gone before. This is the tank we now refer to as the Vickers, a much smaller tank than its predecessors. After the Vickers came the Martel, and later the Carden-Loyd types, which are smaller still.

France began with heavy and medium types, the St. Chamond and the Schneider; later came the Renault, the prototype of our own six-ton special tractor. Before the end of the war came the design for a truly heavy type which has since appeared as the Char 2C. Then came the trend toward decrease in size—the Chenilette St. Chamond, and lately a very light, small, and fast tank. France still attempts to modify the Renault because of the numbers she possesses and the cost of replacing them, but in her experiments the tendency is toward smaller tanks.

In our own country the same tendency is apparent to a lesser degree. From the Mark VIII and Renault, we came to twenty-three-ton Medium and the Christie and T. types. How much farther we will be affected remains to be seen.

In armored cars we begin in England with the Lanchester and end now with the Guy-Vickers. In France, small cars like the Peugeot lead us to the newer White and Berliet cars. Armored cars have been more or less neglected in this country until quite recently.

In some countries armored cars have become so large that smaller cars are again being advocated as reconaissance vehicles to serve their big brothers. Eventually the tendency in armored cars may be toward reduction in size as it has been with tanks.

Some authorities are of the opinion that in time to come the types will blend and that the future will see combination vehicles taking over the functions of both armored cars and tanks. Time alone will tell. At present the possibilities and uses of the two appear to be separated rather widely.

Small vehicles have so many advantages and present such interesting characteristics that an examination of what other countries are doing with them may help us in considering our own problem.

The first small tank or tankette in Great Britain was the Martel type. Created by Major Martel of the British Army, it came in for a good deal of publicity for a time, but has since dropped into disfavor. But we must not overlook the fact that the important thing was not the particular device which he presented, but rather that he offered the first example of a basic idea.

Major Martel made his first model

Fig. 1—Morris-Martel Tankette; Vickers Tank in Background

in 1925, out of scrap material. It was a one-man vehicle and decidedly novel after the huge weapons to which England had been accustomed. The War Office was impressed by its possibilities and had a number built by the Morris Motor Company, both one-man and two-man types. The tank had a sixteen horsepower engine, sufficient for a good rate of speed. The Martel tanks have the characteristic tail wheels which can be used for steering. The chief purposes of these wheels, however, are to give greater length for crossing trenches and to give support in climbing slopes. The tank is armed with a Vickers .303 caliber machine gun, has an open top and, because of its height, is somewhat top heavy and has a tendency to wobble at the higher road speeds.

The Morris Company was in no position to continue experiments, and little else was done with the tank until the Crossley Motor Company completed a one-man model with the Kegresse half-track device. This vehicle was practically the same as the Morris-Martel but was slightly higher and a somewhat more finished product. In both types the driver's seat could be moved up or down about six

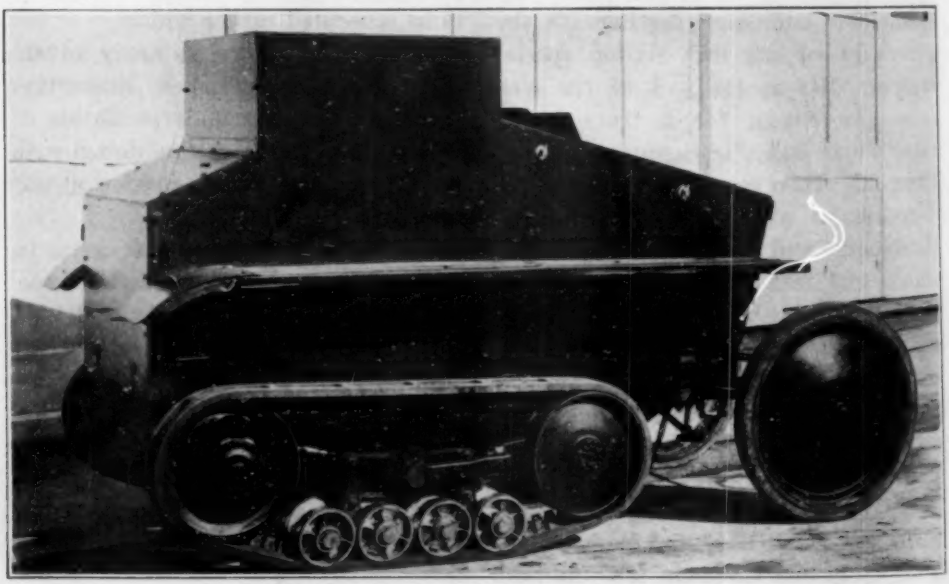


Fig. 2—Crossley-Martel One-man Tankette

inches for convenience in driving and for protection when under fire.

Both of these small tanks weighed about two and one-half tons, and are about eight feet long, five and one-half feet high, and four and one-half feet wide. They had cross-country speeds up to fifteen miles per hour, road speeds up to twenty-five miles per hour, and could be controlled almost entirely by the driver's feet.

Then the Carden-Loyd appeared, suggested by the Carden-Loyd Tractor Company, since controlled by Vickers. This company had made an experimental scout machine in 1925, and in 1927 its fourth model competed successfully with the Martel. The first models were of the one-man variety. It was thought that the one-man type would be most successful in both the Martel and the Carden-Loyd. General Estienne of the French army, the creator of the Renault in principle, visualized the infantry skirmisher advancing in some such vehicle. As a matter of fact, the only one-man tank was called "the General's Dream" after its appearance in England.

In 1928 the one-man type was officially abandoned in favor of the two-man type, as it was found that one man could not handle the machine and a weapon effectively at the same time. The development which led to the present Carden-Loyd Mark VI is the result of this decision.

This vehicle is a most interesting one. Scarcely three feet high, eight feet long and four feet wide, it is inconspicuous, fast, and, above all, inexpensive. Models that applied the wheel cum track principle were developed, using two large pneumatic tired wheels on either side and one smaller one in rear, but these appear to have been given up as were the one-man varieties. The present tank is equipped with an American Ford engine and very light but rugged tracks. It has a low center of gravity, speeds of twenty-five miles per hour, and remarkable maneuverability.

The latest Carden-Loyd model is similar to the Mark VI but has a turret with closed top. This is a pilot model and it is not known whether or not it is satisfactory. It is known that the temperature inside rises rather

Fig. 3—Carden-Loyd Machine Gun Carrier

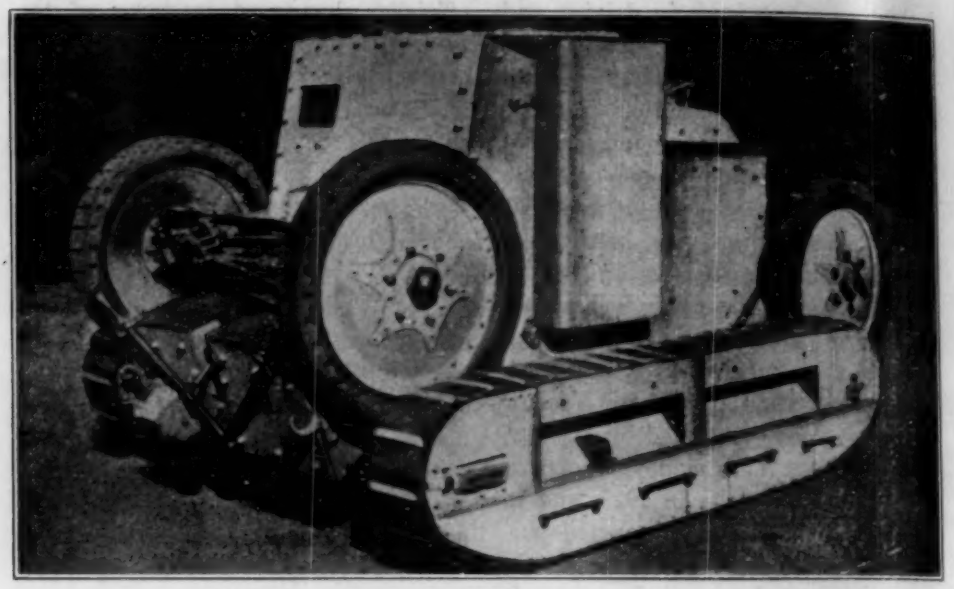


Fig. 4—Chenilette St. Chamond, Model 1921

high, which is of course a great disadvantage.

The British used these small tanks during the past training season not only as light tanks but also in their new and probably proper rôle of armored machine gun carriers. In fact the name tankette has been officially changed to "Armoured Machine Gun Carrier." The machine gun sections of several infantry battalions have been experimentally equipped with them.

In France the St. Chamond Chenilette, a wheel cum track tank, appeared in 1921. This little tank was about ten feet long, six feet wide, and six feet high; it weighs about three tons. It could make a wheel speed of about fifteen miles per hour and a cross-country speed of about four miles per hour. In 1924, a later model with a revolving turret appeared. Neither of these tanks has been more than a test machine, but they point in the direction of reducing size. In the second model, the front wheels were removed while running on tracks, as they interfered with vision and fire to the front.

The development of the combination rubber and steel track has permitted development of a still smaller and much faster French tank. It is reported to present much of the appearance of the Renault but is smaller and attains a road speed of nearly forty miles per hour. Not much else is known of it.

The Ford tank, a World War product, is the smallest thus far, of the American tanks. This is a Renault type, weight three tons, proportions similar to the Renault, but is only about four feet high. It is again being tested to determine whether it can be modified for use as a modern light and fast tank.

Poland experimented with and used some small armored cars on the Ford Model T chassis. They were two-man or three-man cars. The Ford Model T was a rugged car, for all the aspersions that have been cast upon it, but it was

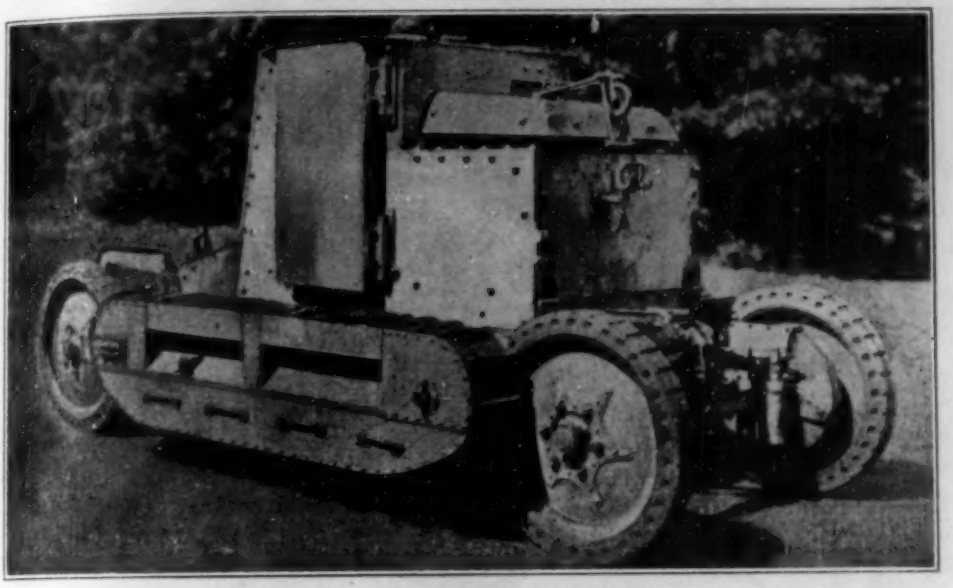


Fig. 5—Chenilette St. Chamond, Model 1921
Seen from the rear, with tracks raised

hardly the chassis for an armored car.

Col. Bruce Palmer, assistant commandant of the Cavalry School, has developed a small armored car on an Overland-Whippet commercial chassis. Figure 7 shows this car, which he invented and built at Camp Holabird. It has been tested and favorably reported by the Tank Board as a light reconaissance and command car for tank units.

Fig. 6—Experimental Armored Car Built at Camp Holabird
Seen from the front, with tracks down

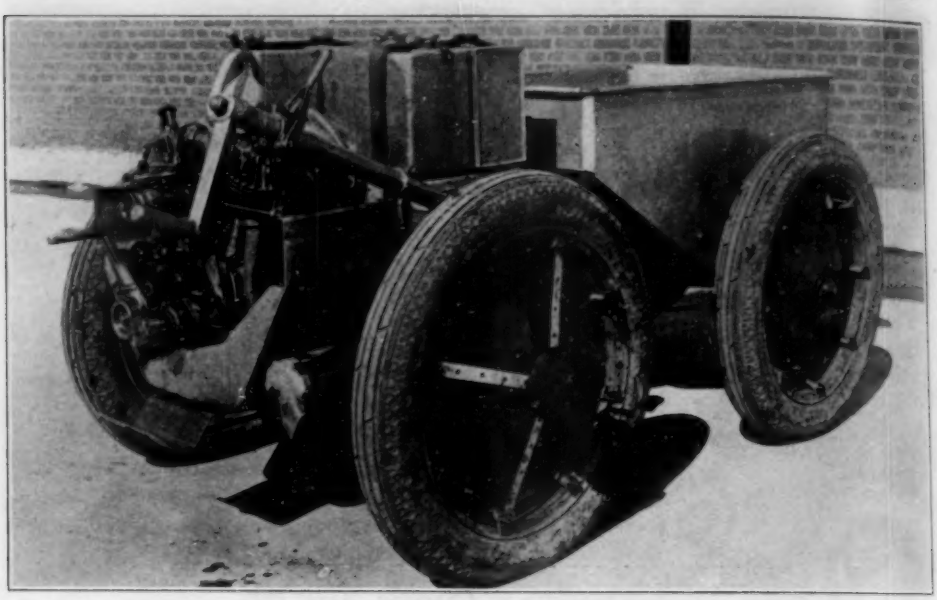


Fig. 7—Power Car Developed by Our Ordnance Department

Other vehicles of the featherweight variety present possibilities which are beginning to be realized. Both Great Britain and France are testing a tracked motorcycle. This type of vehicle, combined with a side car, could be one solution of the machine gun carrier problem.

The air-cooled motorcycle engine presents a good many possibilities in the direction of lighter vehicles. Our Ordnance Department developed a power cart which could be modified into a fighting vehicle, or at least a small supply vehicle. While it is true that the power curve of the two-cylinder motorcycle engine falls off rapidly at higher speeds, it is not likely that these higher speeds would be the rule.

Thus far in this country we have not worked much toward the lighter types of tanks and armored carriers, but that is hardly a reason for not doing so. A light tankette, a machine gun carrier, call it what you will, could be developed around the light motorcycle engine. It should certainly find a use, if only for peace-time tactical training in the new mechanical doctrine. These vehicles could be built in two styles. There could be an open type, and the same vehicle fitted with closed top and twin turrets, one for the gunner and one for the driver, many small holes in both turrets giving far better vision than present tanks.

These vehicles would at least give us a means for training at the higher speeds demanded by developments elsewhere in the world. The open-top type could mount either a howitzer or a machine gun for firing on the move or for quick dismounting to fire from the ground. This vehicle, though somewhat smaller than the Carden-Loyd, would resemble it in some respects.

The English view of the light tank is that it will lead the attack, drawing the fire from the infantry and determining whether the ground is suitable for the larger tanks. These same tanks

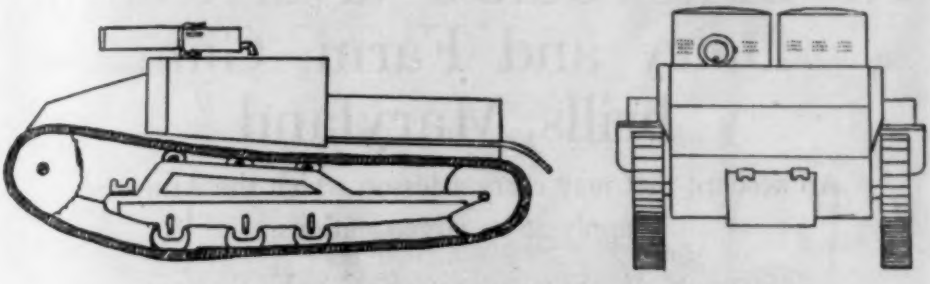


Fig. 8—Motorcycle-engine-powered Machine Gun Carrier

used as carriers fulfill the carrier mission and are also available in emergencies as light tanks, being an integral part of the infantry battalion.

This view is pertinent for us in the light of the new infantry battalion organization tests at Camp Benning and the constant increase in the number of machine guns in the infantry organizations of all countries. Machine guns will have increasingly important missions in the future and must be prepared to move rapidly from position to position in order to take advantage of changes in the situation. The tracked carrier would help to solve the problem.

There are disadvantages in these light vehicles. Without doubt one of the most important is the fact that a gun firing from one of them in motion is likely to hit anything but the target. Therefore, if we consider light vehicles only for their fire-power value they are out of the question. But there is another aspect—the moral and psychological. The man who faces a swarm of these fast-moving wasps is not going to stop to consider anything about the shooting ability of the gunners in them. He will see them coming rapidly in his direction and will have doubts about the wisdom of remaining to face them. The moral value of all tanks is to the fire-power about as three to one, and the proportion increases directly with their speed and maneuverability.

Other advantages of the light vehicles are: low cost, ease of concealment, small targets, and a smaller number of parts necessary for construction and maintenance. Then there is also lighter gasoline and oil consumption, a matter of extreme importance.

The tendency is toward decreasing the size of armored vehicles, and we should not overlook that fact. Tanks and armored cars have inherent characteristics which are not to their advantage and which perhaps can never be entirely removed because of the very nature of the vehicles. It is this fact that is generally overlooked in condemning the featherweight type. No tank or armored car will ever be the perfect fighting vehicle. In the meantime, the smaller ones would seem to present the greatest array of advantages.

What are we going to do about it?

The United States Naval Academy Dairy and Farm, Gambrills, Maryland

An account that may carry a lesson which the Army can apply at its larger stations

CAPT. R. W. SCHUMANN (S. C.), U. S. Navy

THE mission of the United States Naval Academy is:

To mold the material received into educated gentlemen, thoroughly indoctrinated with honor, uprightness and truth, with practical rather than academic minds, with thorough loyalty to country, with a groundwork of educational fundamentals upon which experience afloat may build the finished naval officer, capable of upholding, whenever and wherever may be necessary, the honor of the United States; *and withal giving due consideration that healthy minds in healthy bodies are necessities for the fulfillment of the individual missions of the graduates;*[1] and that fullest efficiency under this mission can only be attained if, through just and humane yet firm discipline, the graduates carry into the service respect and admiration for this Academy.

Good health, as an important educational factor, is receiving more and more attention by authorities in our educational institutions. This attention is along the same general lines as in the larger industrial organizations where production has been found to be definitely influenced by the improved health of the employees.

At the United States Naval Academy, the academic schedule requires close application. Any loss of time through illness not only affects the individual but, in case of an epidemic, the entire routine of the Academy. The four-year course of study and training for midshipmen is both exacting and arduous. To offset this, every opportunity is given them for healthful recreation in all lines of athletic endeavor, and their health is guarded by medical officers and by the carefully supervised menus which offer seasonable variety and an abundance of well-cooked food. Milk has an important place in this dietary, not only as a beverage, but in the form of butter, cream, ice cream, custards, and the like, all requiring a high standard of purity in the milk content. Milk is so easily contaminated that, after an outbreak of typhoid fever at the Academy in the fall of 1910, a board, appointed by the Superintendent, recommended the erection of a modern sanitary dairy, owned and operated by the Naval Academy, as the only proper method of insuring pure and wholesome milk for the regiment.

The present dairy is the outgrowth of the original idea, for which the late Capt. Samuel Bryan, Supply Corps, U. S. Navy, received lasting credit. With the assistance of the Dairy Division of the Bureau of Agriculture,

[1] Italics are the author's.

The Dairy Buildings

Captain Bryan began the construction of a modern dairy farm on the site of the present golf course near the hospital. After eleven months, in October, 1911, the milk supplied the midshipmen came from their own dairy, from cows housed in sanitary buildings, scientifically fed, and regularly inspected for health and for purity of the milk.

So great was the demand for the products of the new dairy, that it was soon necessary to enlarge the plant. This necessitated another location. Captain Bryan again showed his excellent judgment in selecting at Gambrills, Maryland, the site for the new dairy. Located only twelve miles from Annapolis on the Washington, Baltimore and Annapolis electric railroad, eighteen miles from modern concrete highway, the eight hundred and sixty-four acres of admirable farming land secured have all the advantages of situation, drainage, and fertility needed in a modern dairy farm. Construction began in July, 1914, and the new dairy was in full operation in April, 1915. The dairy has the appearance of a small village made up of the office and milk houses, five cow barns of fifty capacity each, seven silos, hospital and maternity barns, power pump and artesian well houses—all of the most approved sanitary construction—and frame mess hall and cottages for the farm employees, situated on a hill overlooking the surrounding country. The whole plant makes quite a colony; besides the dairy and farm employees, there are a blacksmith, an automobile mechanic to look after and overhaul the trucks, tractors, and other farm machinery, carpenters to repair buildings, painters, engineers for the power plant, a laundryman, cooks for the mess for unmarried employees, and a gardener to manage the farm garden, which supplies all fresh vegetables to the farm employees at cost.

Of the eight hundred and sixty-four acres of the dairy farm, four hundred and thirty-nine are under cultivation, one hundred and eighty-two are pasture land, fourteen are roads and grounds, and two hundred and twenty-nine are woodland. The farm produces crops sufficient to feed all animals, with the exception of certain prepared feeds necessary to a milking

herd. A careful record is kept of the production of each field, indicating necessary fertilizers and rotation of crops. During the winter months of each year additional woodland is cleared. An average year's record of crops produced by the farm would include thirteen hundred tons of ensilage, six hundred tons alfalfa hay, thirty-five hundred bushels of field corn, and fifteen hundred bushels of oats.

THE DAIRY HERD

When the dairy was first organized it was decided that the Holstein-Friesian breed was best adapted for the needs of the midshipmen. This breed produces the most milk; and although the fat content of the milk is not quite so high as that of Jersey cattle, the fat globule is smaller, more digestible, and better suited for drinking. Lack of funds prohibited the purchase of all pure bred cattle, but a number of pure breds and the highest type grades were obtained at the time, and the herd is constantly being improved by scientific breeding and pure bred sires. The herd on July 1, 1929, consisted of three hundred and fifty-six Holstein-Friesian animals, of which one hundred and eight are pure breds, divided as follows: eight bulls, seven bull calves, one hundred and fifty-six milking cows and heifers, one hundred and forty-nine heifers, and thirty-six dry cows.

The principal herd sire, Admiral Piebe No. 473395 H. F. H. B. of the K. P. O. P. line, was purchased in Iowa when twelve months old for $1,200. By following the "line breeding" method, it has been possible to increase steadily the milk production of the herd as a whole, and by gradual elimination of lower grades the herd will eventually consist of pure breds only. The best pure bred, Meek Piebe Forbes 2nd, No. 352016 H. F. H. B. produced in 1926, 24,077.8 pounds of milk—972.67 pounds of butter, in three hundred sixty-five days, an average of 7.74 gallons of milk daily for one year. The best grade produced 17,222 pounds of milk—602.8 pounds of butter in three hundred forty-two days, an average of 5.9 gallons per day for that period. The herd average for the past five years shows the result of the system followed:

Calendar year 1924 — 10,926
Calendar year 1925 — 12,962
Calendar year 1926 — 13,001
Calendar year 1927 — 12,710
Calendar year 1928 — 13,539

Cattle Superintendent P. F. Krause is a graduate of Pennsylvania State College, 1912. Much of the improvement in the dairy herd for the past six years is due to the scientific methods installed by Mr. Krause and his great interest in building up the herd by proper breeding.

REGULATION OF MILK PRODUCTION

On account of the absence of a large part of the regiment each summer, an effort is made to reduce the milk production during that period and to insure an increased production at the beginning of the academic year late in September. The present summer average is 13,500 gallons per month, increasing to 17,700 gallons during the winter months. In 1928, the minimum summer amount was 11,814 gallons; the maximum 14,814 gallons, while the maximum of the winter months reached 19,927 gallons. The daily requirements of the midshipmen are

about 500 gallons of milk and 20 gallons of twenty per cent cream. To these must be added milk for feeding calves, milk furnished employees of the farm, and a small factor of safety to guarantee at all times an adequate supply. As the farm is self-supporting, the direct expenses and overhead must be met by the sale of its dairy products to its sole customer, the Midshipmen's Mess. An elaborate accounting system is in effect which shows exactly the cost of the production of milk per gallon, the cost of feeding both the fresh and dry animals, the cost of raising heifers until freshened, the profit made on all crops, and a depreciation charge on all property, including work animals, in order to cover deterioration and unavoidable losses.

CARE TAKEN IN HANDLING MILK

To even the casual visitor, the routine followed to insure cleanliness and prevent contamination of the milk indicates the attention given to all the important features of pure, raw milk production. The screened milking barns are scrubbed and washed down before each milking, insecticide being freely used to kill any flies present. The milkers are provided daily with clean white suits and caps, and are required to wash their hands and dry them with sterilized towels before milking each separate cow. All utensils that come in contact with the milk are thoroughly washed and sterilized before being used. Cows are brushed and hind quarters washed with soap and warm water before each milking. Each cow receives her weighed out meal from her numbered container, and is allowed to eat and rest quietly prior to milking. After milking, the milk is weighed and recorded and then taken at once to the modern milk room where it is strained and immediately cooled to a temperature of forty degrees Fahrenheit. It is then stored in sealed cans in the refrigerator room until shipped to the Naval Academy by electric trains. In summer the cans are incased in a canvas felt-lined covering to insulate the milk from the heat while in transit. On arrival at the Academy, the milk is at once placed in a special milk room in the Midshipmen's Mess cold storage, so that the temperature is kept below fifty degrees until the milk is actually placed upon the mess tables. This cooling of the

One of the Five Cow Barns

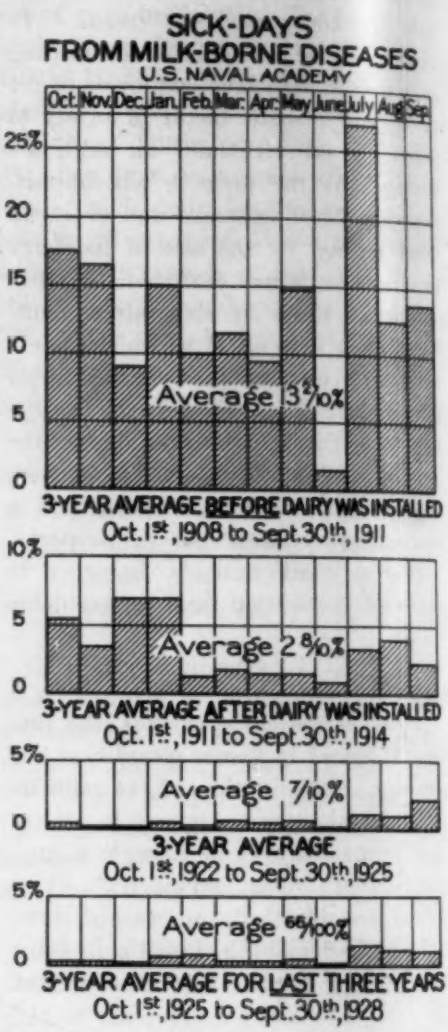
milk not only makes it more palatable but checks the growth of even the very small number of bacteria inseparable from all milk. All these elaborate sanitary precautions are necessary to produce milk averaging less than 2000 bacteria per cubic centimeter, as shown by the monthly surprise inspections of the Bureau of Dairying, U. S. Department of Agriculture. Certified milk is allowed 10,000 bacteria per cubic centimeter, so it is obvious that the milk supplied the midshipmen is of exceptional purity.

HEALTH OF THE REGIMENT

The attached chart shows the effect of good milk on the health of the Regiment of Midshipmen in the freedom from milk-borne diseases. The phenomenal decrease in the number of sick days since the establishment of the Naval Academy Dairy clearly indicates that clean, raw milk is of the greatest benefit. A decrease of from thirteen and two-tenths (13.2) per cent from these disorders *before* the installation of the dairy to an average of only sixty-six hundredths of one per cent (.66) for the last three years tells its own story.

It is understood that the remarkable showing in the improvement of the health of the Regiment of Midshipmen so impressed officials of the British government that dairies on the general plan of the Naval Academy Dairy were established, with most beneficial results, for the English army in India, where milk-borne diseases are very apt to occur.

In considering these results it must be remembered that the subjects are not frail children but young men in prime physical condition and especially selected for their stamina and fitness.



Figures above represent the percentage of sick days during each month; being the attendance on first day of each month multiplied by thirty, divided with the total sick days for that month. If the average attendance has been one thousand midshipmen there would have been a yearly average of one hundred and thirty-two sick days from Oct. 1, 1908, to Sept. 30, 1911; from Oct. 1, 1911, to Sept. 30, 1914, an average of twenty-eight; from Oct. 1, 1922, to Sept. 30, 1925, an average of seven; and a further reduction from Oct. 1, 1925, to Sept. 30, 1928, to six and two-thirds sick days.

A sick day is one midshipman sick one day.

The percentage of prevalence of milk-borne diseases; that is, admission to the hospital, duration of each case not being considered, which is the usual practice in reporting prevalence of diseases, is only .016%, yearly average from Oct. 1, 1925, to Sept. 30, 1928.

There is no health record, as far as we know, that shows the comparative effect of clean milk as opposed to milk of doubtful purity, which even approaches the results obtained at the Naval Academy, where the conditions that surround the midshipmen remain quite uniform.

THE DAIRY FINANCES

The dairy is entirely self-supporting. Congress does not appropriate for its operation. Its profits, shown by the monthly and annual reports, are carried as a reserve fund to insure immediate rebuilding in case of fire or other calamities; to renew the herd should there be an epidemic of tuberculosis, or hoof and mouth disease, that might entirely or partially destroy the herd, and to meet other contingencies.

The average number of employees during the summer months is seventy, with a pay roll of approximately $5,000. During the winter months the personnel is reduced to about fifty-five. Most of the reduction is among the farm employees, for the dairy proper requires a constant number.

The initial expenditures for the dairy were financed by a loan from the Midshipmen's Store, later refunded. In July, 1914, when construction began at Gambrills, Congress by the Act of March 4, 1913, appropriated $100,000 for the purpose. The acts of August 29, 1916, and March 28, 1918, provided $100,000 and $55,000 more, a total of $255,000, for the purchase of "land, animals, buildings and necessary equipment." Of this amount, on January 16, 1925, $100,000 was returned to the Treasury, and the act of March 4, 1925, repealed the provision of the ultimate return of the balance, $155,000, but provided: "That the dairy and farm, cattle and work animals, machinery and implements, buildings and other stock, equipment, and supplies heretofore purchased from the funds so advanced shall become and remain the property of the United States: Provided further, That the dairy farm shall be continued and operated as an activity of the Midshipmen's Store."

The dairy is conducted as an entirely separate organization in no way connected with the operation of the Midshipmen's Mess, other than as a source of milk supply. The yearly statement of the dairy is combined with that of the Midshipmen's Store in the Bureau of Supplies and Accounts, Navy Department, but in actual operation the two activities are in no way related.

In the preparation of this article, the writer is indebted to Capt. Brantz Mayer, Supply Corps, U. S. N., his immediate predecessor as officer in charge, for much of the information recorded. During the four years of Captain Mayer's administration decided improvements were made in herd breeding, milk production, and physical condition of the property.

Visitors are always welcome at the dairy. Lieut. T. M. Stock, Supply Corps, U. S. Navy, assistant to the Officer in Charge, lives on the property. He will be glad to conduct visitors over the grounds and explain the methods in force in any department of the farm or dairy.

Our Tanks

MAJ. RALPH E. JONES, Infantry (Tanks)

III

PRESENT IDEAS OF TANK TACTICS

THERE was little time during the World War, after the appearance of tanks, in which to perfect tank tactical doctrine—and there was little experience upon which to found it. Since that war there has been little additional tank combat experience but much change in the tactical capability of tanks. It is therefore not strange that our present ideas of tank tactics must be based upon the accepted methods of other elements, upon academic study, and common sense, to a greater extent than upon tank combat experience.

The suitable agencies have been engaged for a considerable time in an effort to gather, sift, and organize existing tank tactical ideas, and to make such modifications and expansions as recent mechanical developments appear to demand. The careful completion of such work and its official promulgation is time-consuming and likely to encounter various unforeseen delays. Pending its approval and publication, this article may serve to throw some light on the probable substance of our tank tactical doctrine of the near future.

The student of military strategy and tactics has at least a general idea of the value of mobility. He can recall instances in which only a slight superiority in mobility has been of vital importance. If a slight superiority in mobility is so valuable, what may we expect of the six-fold increase in the speed of our tanks when quantity production shall have made it available to our organizations?

Before confining ourselves to tank tactics, it may be well to consider briefly a broader matter—the important military results to be expected from the development of the modern tank. This achievement gives us, primarily, reliable and very rapid cross-country transportation. Through a variety of applications, this suddenly makes increases in strategic and combat mobility practicable. It is a very important matter and far-reaching in its results. The rapid transportation of armor, armament, and crew is obvious. The other applications may not be. Ammunition carrying parties are slow, vulnerable, and relatively ineffective and uneconomical. How much speedier and more satisfactory in every way for getting machine gun and mortar ammunition forward is the fast, armored, cross-country carrier! Such carriers may also transport small parties of men, machine guns, and ammunition, or larger special combat reserves, to points where needed; they may transport engineers with equipment for demolitions, stream crossings, or other purposes; or they may deliver miscellaneous supplies such as barbed wire, gasoline, rations, and water. On their trips to the rear they may transport wounded men with the utmost celerity to suitable points for medical attention. Artillery mounted upon such vehicles will be better able to render constant and close support to

the line in a rapid advance or a retirement. The speedy carriers will keep this artillery supplied with ammunition. Carriers with special bodies will be used for various special purposes, including that of command and communication. All of these applications will contribute greatly to combat mobility and effectiveness, even though the majority of the men still move on foot. It thus seems apparent that, although the expense of re-equipping will delay the change, we must and shall, sooner or later, find ourselves using speedy cross-country carriers for various purposes and in large numbers in our military establishment. Combat mobility is too valuable to be cast lightly aside.

In our initial consideration of tank tactics, we should first visualize the general combat functions. These are more truly fundamental than the types of tanks. The functions indicate the needs. We fill the needs with the preferred types if we can. If we cannot, we use the types we have. These functions may be enumerated initially as *accompanying tanks, leading tanks, the armored force, the mechanized force, reconnaissance and security.*

It is recognized that there is a lack of unanimity of opinion among our Army officers as to the meanings of some of these terms. In the opinion of the writer, each term is used in this article in the sense in which it will probably be fixed officially in due time, and in the sense which is in accordance with the consensus of present opinion among those concerned. Anyway, the correlation of the words with the conceptions, when established, is not relatively important; but the conceptions themselves *are* important.

Accompanying tanks work in close cooperation with line troops. The chief example is a light tank platoon attached to an assaulting infantry battalion. Such a platoon stays reasonably close to the battalion. If within the zone of the main effort, it cleans up such points of resistance as may develop after the leading tanks have passed on. If outside the zone of the main effort, there will usually be no leading tanks and the accompanying tanks will be the only tanks present.

Leading tanks smash the way for the main effort of the attack by the line troops. They attack as a single unit to facilitate and insure the capture of certain important objectives. They precede the foot troops by a greater distance than do accompanying tanks and they are independent of the lesser infantry unit commanders. They penetrate deeply into the enemy's organization and do not delay their advance for the purpose of keeping near the assaulting foot troops.

An armored force consists chiefly of armored vehicles and is intended for relatively independent combat uses. It fights without dismounting or unlimbering, and it must be capable of moving at very high speed. The armored force (as is true of tanks generally) is unsuited for passive defense. Possessing both strategic and combat mobility, it is a type of unit that strikes and withdraws rapidly. It is useful for attacks against tanks, for raids against the enemy's rear and flanks, for turning movements in conjunction with general attacks, and for exploiting a break-through or other success, and it may be used for distant reconnaissance in force or counter-reconnaissance.

A mechanized force is a composite of armored elements (which do not dismount to fight) and motorized elements (which do dismount to fight). On account of the disparity in combat mobility of its elements, the tactical employment of the mechanized force is somewhat limited. It is suitable for certain special missions such as the seizure of a strategic point in an advanced location. The mechanized force may be employed as a permanently organized force or it may be formed temporarily from armored and motorized elements. If there is not to be both a permanent armored force and a permanent mechanized force, it would seem to be good economy to have an armored force permanently and form a temporary mechanized force when circumstances require such action.

Reconnaissance and security missions will call for the use of tanks at various times and places, and the sizes of such required tank forces will be variable. It is possible that almost any of the various tank units may sometimes engage in this work, and it seems that any permanent allotment of tank units for the purpose would be both unnecessary and impracticable. Therefore, if we consider the mechanized force as a temporary organization only, there remain only the armored force and the leading and accompanying rôles to require the more or less permanent allotment of tanks.

What types of tanks, then, are required for these three types of forces? The answer is easy in the case of the accompanying tanks. Fast, light tanks are best; slow, light tanks are suitable.

In the case of the armored force, the answer is not so simple. Engaging as it does in independent combat, various combat elements are necessary. There must be an assaulting element. And since the fire from tanks in rapid motion is much less accurate than fire from stationary tanks, there should be supporting fire. Since this supporting fire must also have high mobility, and since the crews require some protective armor, suitable additional tanks constitute the best means for furnishing this fire. Tanks that furnish supporting fire normally do so while stationary and from positions that are either defiladed, partly defiladed, or concealed. Two types of supporting tanks are preferable; one uses direct fire and high-explosive shell; the other uses high angle fire, often with smoke, but perhaps with gas or high explosive. It is possible that the cannon of the assaulting tanks may be somewhat lighter than the cannon of the direct-fire supporting tanks. It is of prime importance that all vehicles of the armored force be capable of high speed to substantially the same degree, and, with the possible exception of some supply vehicles, capable of cross-country travel. Hence the engineer contingent of the armored force will undoubtedly use tank chassis with a special superstructure adapted to its needs.

In investigating the types of tanks required, there remain for consideration the leading tanks. These tanks must plunge directly into very strong resistance, and they must be sure to get through. To have suitable driving power, they must have high speed, must be used in large numbers, must utilize a formation with several waves, and must have the size and other necessary qualities to enable them to pass

over all reasonable obstacles. To avoid unnecessary and excessive casualties, they should be successfully armored against small-caliber antitank guns, and the assaulting tanks should have fire support. Whereas the assaulting tanks of an armored force require supporting fire from other special tanks, that is not quite so surely true of the leading tanks. It may be that one type of tank for the leading rôle will suffice. If so, the leading tanks will have fire support from friendly artillery when practicable, and some of them will support by fire others of the same type that are in assault. Whether one or more types of tanks will be required in the leading rôle is a question that will doubtless be appropriately decided in due time.

Some of the more important general principles that govern the use of tanks are:

a. Tanks should be allotted to units and areas only where the terrain is suitable for their use.

b. As a matter of economy, they should be used on unimportant missions.

c. They are best used simultaneously in large numbers. Their use in a piecemeal method is grossly wasteful and ineffective.

d. There should be as great an element of surprise as possible in every tank attack.

e. The attack by leading and accompanying tanks should be on as broad a front as is consistent with other conditions.

f. Tank attack formations must have depth. Leading tanks attack in waves. The depth of formation may be increased by increasing the number of waves. Accompanying tanks contribute to depth by having one platoon with each infantry battalion.

g. Adjacent tanks in deployed line should be close enough for mutual support and intercommunication, but not so close as to increase unduly their vulnerability.

h. The effective use of available tanks should receive special attention when a pursuit is planned.

In effecting a major break-through, it seems probable that tanks will best be used in the following order: first, the leading tanks; then the accompanying tanks (with the foot troops); and finally, the armored force, whose mission is to overrun the enemy's rear areas and thus exploit the success and prevent the enemy from restoring his defensive system.

Fallacious ideas as to the use of a new weapon are doubtless to be expected. The modern fast tank *is* a new weapon and fallacious ideas regarding it *are* extant.

First fallacy: "As in the World War, tanks are tanks. They help infantry foot troops to get forward, and that's about all there is to it."

This is the extremely conservative view, and it is, of course, very incorrect. Important changes in method habitually occur from one war to another. This is especially true of newly developed or greatly improved weapons. In the next great war, the various logical general functions of tanks must and will be properly recognized. Organizations will be developed so as best to accomplish these several functions, and the tentative planning of organizations that seem appropriate for these purposes is a matter that merits our present attention.

Second fallacy: "In the next great

war, our Army may be relatively small but it will be organized as a large mechanized force."

This is the extremely radical and visionary view. As an imaginative theory it has some very attractive features but unfortunately it is quite out of step with governing practical considerations. We cannot afford to build (or, at any rate, we shall not build) very many tanks in time of peace. When a war starts, we can not build very many very soon. But, to hope for success, we must utilize manpower liberally on the battlefield. The main force will therefore, as usual, consist of foot troops in battle line. Tanks will be a more important auxiliary than before. There will be a suitable organization of them to lead the main effort; there will be accompanying tanks; and the commander of our army will have an armored force. Let us hope that the last will not be insignificant in size.

Third fallacy: "Fast tanks are unsuitable for use as accompanying tanks."

When a great disparity of mobility between elements exists or is contemplated, each such case should be analyzed and judged upon its own merits. It is generally true that the slowness of the slow elements is a handicap to the fast elements, but it is not generally true that the speed of the fast elements is a handicap to the slow elements. The speed of infantry troops on foot being severely limited, it is easy to see that, if some of our tanks are slow, such slow ones may best be used in the accompanying rôle; in the other two rôles speed is a greater asset and the restraining effect of the slow-moving foot troops is not so pertinent. It does not follow, however, that high speed is an undesirable quality for accompanying tanks. The opposite is true. Speed greatly increases their value. Speed is valuable to any tank for more reasons than one. It enables the tank to accomplish more in a given time and it greatly reduces its vulnerability to fire. A platoon of fast accompanying tanks will accomplish its successive tasks very speedily and with a minimum of exposure. Between times, while it is waiting for the foot troops to advance, it may lie in concealment, or it may even, if necessary, proceed temporarily to a secure place some considerable distance to the rear.

We might consider as a fourth fallacy the notion that the organization of fast tanks, at the hand of the commander of the whole force for relatively independent uses, should habitually be accompanied by motorized foot troops in considerable number. Such troops would nearly always be more of a handicap than an asset for the following reasons:

a. In comparison with the tanks, they would have practically no battle mobility. When they had dismounted, the tanks would either be tied to them, or the force would be separated. In the former case, the utility of the tanks would be sacrificed; in the latter case, it would be difficult for the tanks to protect the foot troops.

b. It would be too expensive, financially and tactically, to carry such foot troops permanently in any large number in cross-country carriers of the speedy tank type. Such vehicles might, to much better advantage, be finished as combat tanks.

c. If the foot troops are not carried as in *b*, they must be carried in fast

wheeled vehicles. In that case, when it was desirable for the tanks to take a short cut across country, the very undesirable separation of elements would be necessary with consequent danger to the motorized element.

d. Except in unusual cases, these motorized foot troops accompanying the tanks would be relatively useless. They are of no use when mounted. They are relatively small in number and weak in combat strength. When dismounted, if they are not to ruin the usefulness of the tanks, they must often be left alone and unsupported, which might put them in grave danger of capture or annihilation or of being raided by the enemy's tanks.

The foregoing comments are not intended to disparage in any way the organization of motorized reserves for use in conjunction with the line troops.

Tactical successes depend upon cooperation. Leaders of foot troops are interested in the general functions of tanks, and also in the specific methods of cooperation that are necessary or desirable between the foot troops and the tanks. In the latter, we are limited almost exclusively to the accompanying tanks. Leaders of foot troops should understand and heed the following points:

a. Tanks help foot troops to advance, but they also sometimes need help from the foot troops. When accompanying tanks are under, or are about to come under, the fire of the enemy's antitank guns or other direct firing cannons, the aim of the gunners should be disturbed by any and all possible means, including, of course, rifle and machine gun fire. To insure that the foot troops will give this important supporting fire to their accompanying tanks whenever practicable, certain minor units may well be designated and instructed for that specific duty.

b. Tanks not being suited to passive defense, the foot troops should advance as rapidly as practicable after the tanks and should take prompt action in mopping up and defending, or in overrunning and passing beyond, such terrain features as their tanks may have taken. The foot troops may sometimes be forced to cover while their accompanying tanks advance against particular resistance. The troops should not then wait for the tanks to neutralize *all* of the resistance, but should advance by fire and movement as soon as the tanks have reduced it sufficiently to make the advance practicable.

c. Troops should not lose contact with their accompanying tanks. If necessary, they should send scouts ahead to maintain connection.

d. Troops may sometimes bring a particular objective to the attention of accompanying tanks by means of tracer ammunition.

e. Troops should avoid gathering closely around or in rear of advancing tanks. It is a hazardous place for them, as the tanks draw hostile fire, and there is no compensating advantage.

f. The paths crushed through wire entanglements by tanks are frequently useful as passage points for troops. These places may sometimes advantageously be improved or enlarged by the troops.

g. Tank units and their leaders are trained for their special functions. They require latitude for initiative if they are to accomplish the best results. Infantry battalion commanders should

avoid specifying unnecessary methods and details for their accompanying platoons. For example, it is useless and detrimental to direct that the platoon maintain a certain distance in advance of the foot troops.

h. Tank units should be ordered to their reservicing points without unnecessary delay.

Obviously, there is a great deal more that might be written about tank tactics. An effort has been made to retrict this paper to a brief elucidation of the general offensive picture, with emphasis upon certain important points. In the defense against tanks, the utilization of natural obstacles and the employment of relatively immobile antitank guns are factors of high importance and value, but they should not be permitted to obscure the fact that tanks themselves constitute one of the best defenses against tanks.

The next and final article of this series will deal with "The Tank School and the Tank Board."

A Correction

ON account of the removal of a sub-title an error of meaning occurred on page 493 of Maj. R. E. Jones' article "Our Tanks" in the November number of the INFANTRY JOURNAL. The paragraph that begins on the fourteenth line of the left-hand column on page 493 refers to the Christie Tank, and should have started with those words.

The author also prefers the use of the words "the leading rôle" to such expressions as "for leading" that appear in the article.

Finally, in the third sentence of the opening paragraph of the article, the word "principal" was erroneously inserted.

We hope that these errors did not detract too much from Major Jones' carefully prepared paper.

Boonville

The first land battte of the Civil War

LIEUT. COL. JOHN B. BARNES, U. S. Army, Retired

The apparent magnitude of events furnishes no true index of their importance. In writing the story of the first land battle of the Civil War, Colonel Barnes has also made clear how the actions of a Captain had an important influence on the Civil War.—EDITOR.

ON June 17, 1861, more than a month before the battle of Bull Run, Missouri State troops and Federal forces fought an engagement near Boonville, Missouri. This was the first land battle of the Civil War. Historians refer to the event as a minor skirmish. If judged by the numbers engaged and the losses sustained, this estimate is correct; but if judged by military and political results the action was far reaching, if not in fact decisive, in its consequences. The record of the battle is overshadowed by more impressive accounts of major happenings; the scene of the battle is unmarked and unrecorded; the action was a badly planned, ill advised, and haphazard little skirmish amongst the Missouri hills, but Boonville had a decided bearing on the final political line-up on one of the great states, and probably on the ultimate course of the Civil War.

The beginning of the year 1861 found the United States in a state of political turmoil. South Carolina had already seceded from the Union. Other states were preparing to do so. Missouri was the only border slave-holding state west of the Mississippi. Her people were largely descendants of emigrants from Virginia, Kentucky, and Tennessee, and while they were not in general actual secessionists, their sympathies and interests were plainly with the South.

Claiborne F. Jackson, who had been elected as a "Douglas" Democrat, was inaugurated governor of Missouri on January 4, 1861. He was an ardent state rights man and southern sympathizer. In his inaugural address he declared that Missouri should stand by the slave-holding states and, if the Union were divided, should go with the South. No doubt he voiced the views and sentiments of the majority of the people of the state at that time. He recommended to the state legislature, then in session, that a state convention be called which should define Missouri's position on the question then being considered by a number of states, namely, secession or nonsecession. By January 17 both houses had passed a bill ordering the convention. In the meantime the legislature solemnly declared that if the Federal Government sent an army into South Carolina, or into any other slave-holding state, in order to coerce it to remain in the Union or to force its people to obey the laws of the United States, "the people of Missouri would instantly rally on the side of such state to resist the invaders at all hazards and to the last extremity."

During the campaign for election of delegates to the state convention very

strong sentiment developed that the secession of Missouri or the dissolution of the Union would be ruinous to the state's best interests. This was brought about by the conservative element of the state, which included most of her prominent men. The convention, consisting of ninety-nine members, met on February 28. Sterling Price, an avowed Union man, was chosen president. When a vote was finally taken not one delegate would go on record as favoring the secession of the state. This unlooked-for action was largely due to the courage, moderation and tact of Francis P. Blair, Jr.—by politics a free-soil Democrat and an unconditional Union man. He was assisted in bringing the result by other Democrats—Sterling Price, Hamilton R. Gamble, James S. Rollins, William A. Hall and John B. Clark.

The convention was adjourned to meet at a later date. Members of the convention, however, had taken the unmistakable stand that while they were opposed to secession and in favor of maintenance of the Federal Union, they were at the same time opposed to any coercive measures by either the Government or any state that would involve the employment of military forces. They foresaw a disastrous conflict looming in the distance, and a policy of non-coercion or neutrality seemed the only means of averting the threatened storm. This was the position generally occupied by Union men and conservatives of all the border states at first. With a policy of fidelity to the Union, they earnestly sought means of conciliation and peaceful solution that would prevent the Government or the states from taking steps that would plunge the nation into an unthinkable state of civil warfare.

Governor Jackson did not accept the adverse action of the convention as final. His initial attempt to take Missouri out of the Union having been thwarted, he immediately inaugurated plans to retain military control of the state, and at least keep it in the neutral column. There was a large and important United States arsenal in St. Louis, and early in March the governor came to St. Louis to devise measures for seizing this arsenal in the name of the state. Before his plans could be carried out, the bombardment of Fort Sumter took place. President Lincoln (April 15) called for seventy-five thousand troops to support the Government. To this call upon Missouri for her quota of such troops the governor replied that "the requisition was, in his opinion, illegal, unconstitutional, and revolutionary in its object, inhuman and diabolical, and that Missouri would not furnish one man to carry on such an unholy crusade." He reconvened the general assembly (on May 2) to adopt measures for the defense of the state. On April 19 he wrote to David Walker, president of the Arkansas convention: "From the beginning, my own conviction has been that the interest, duty and honor of every slave-holding state demands their separation from the northern or non-slave-holding states."

State troops took over a small Government arsenal at Liberty on April 20. On the 22d Governor Jackson's adjutant general issued an order assembling the state militia for instruction. Under the law such measure was legal and proper. In pursuance with this "Camp Jackson" was established in St. Louis. Daniel M. Frost, a brigadier general of the Missouri militia and a graduate of the United States

Military Academy, was placed in command. The purpose of establishing Camp Jackson within striking distance of the St. Louis arsenal was apparent to the public, and to the local Federal commander. Several hundred militia responded to the mobilization order and drill and disciplining of the raw troops was soon under way. An appeal to President Davis of the Southern Confederacy brought a supply of siege guns and mortars from Baton Rouge. At this juncture Capt. Nathaniel Lyon, U. S. Army, commandant of the arsenal, with Francis P. Blair as advisor, surrounded Camp Jackson on May 10 and captured all its personnel. While the captured troops were being paraded a crowd of their sympathizers gathered, and one of Lyon's regiment fired into the crowd and killed twenty-eight innocent men, women, and children.

The capture of Camp Jackson and the bloody scene that followed thoroughly aroused the state. Profound resentment and the wildest excitement existed. Sensational and exaggerated reports flew. There were impromptu uprisings in many localities to avenge the "wholesale slaughter of women and children." The people were thrown into an unreasoning frenzy of state loyalty and non-Union sentiment. In fact the legislature and the people, both of which had been somewhat lukewarm to Jackson, became non-Unionist overnight. The legislature passed a resolution almost unanimously condemning Lyon's act, and immediately enacted the "Missouri State Guard Bill." This bill provided for arming and equipping the State Guard, created a military fund, and conferred dictatorial powers upon the governor. Hardly less important than this, the wanton act of Lyon's troop served to alienate the loyalty of many influential men who had up to this time been staunch Union supporters. Among these were Sterling Price and John B. Clark. Price was appointed major general in command of the state troops, and both he and Clark became prominent southern leaders.

The state sprang to arms. Volunteers began to crowd the streets of Jefferson City, the capital. The people, by representatives convened in an assembly, had refused to secede, but the people as individuals were in open rebellion and were engaged in carrying out a greater measure of preparation for resistance to the Federal Government than were some of the states that had actually seceded. There seemed to be no question that the decision of the people was to go with the South.

Lyon and Blair had seven thousand troops under their command. They would no doubt have moved energetically to disperse the militia and control the situation but for the arrival in St. Louis on May 11 of Gen. William S. Harney, who commanded the military department of the west. While making it plain that he did not approve of the present attitude of the state, Harney temporized and attempted to use conciliatory measures. He issued a proclamation "to the People of Missouri," called a conference with Price on May 21, and signed an agreement with him which would possibly have given an opportunity for a better understanding and perhaps might have resulted in some means of settlement other than by the arbitrament of the sword had its provisions been carried into effect. However, the authorities at Washington disapproved of Har-

ney's peaceful gesture. Lyon was appointed brigadier general on May 31, and assigned to command in Harney's place. Among General Harney's peace measures was the dispersion of the Federal troops then in St. Louis, so that Lyon on again succeeding to command found his "army" not prepared for quick action.

There is no doubt that Governor Jackson ardently favored secession. This period would seem to have been the strategic time for him boldly to have taken decisive action to place the state in the secession column, but he was irresolute and hesitating, and let the critical time go by without taking any decided and definite steps. At the crucial moment he lacked the courage of his convictions. He was possibly sparring for more time to arm and equip the state troops. He apparently had not the foresight nor the sound advice to bring about a realization that time might accrue to the benefit of the Federal Government in a much greater degree than to the state. The period of ten days after May 31 was Jackson's golden opportunity to declare boldly a state of rebellion, as he apparently had ample authority to do under the provisions of the State Guard bill.

In the meantime the conservative element put on foot a plan whereby Missouri would maintain her neutrality. In furtherance of this plan a meeting of opposing leaders was called at the Planters' Hotel in St. Louis on June 11. Jackson, Price, Lyon, and Blair attended. Jackson and Price were said to be the ablest politicians of Missouri. Lyon was a little, red-headed, red-bearded, precise, positive, plain Regular Army officer, but a man of decision and action. He turned the Federal side of the discussion over to Blair at first, but very soon took it out of his hands. The whole conference felt him to be a master mind. Authorities have put Lyon down as one of the greatest men produced by the war, though his career was brief—he was killed at the battle of Wilson Creek a few weeks later. He dominated the meeting and finally, to Jackson's proposition that the peace and neutrality of the state be preserved by both sides and that Federal troops be withdrawn and state troops be demobilized, he served notice on Jackson and Price that he would give them safe conduct out of the Federal lines in an hour, and that the state authorities should not dictate to "his Government" in any matter whatsoever. "This," said he, "means war."

And war it was. The governor and his associates left for Jefferson City that night, burning the railroad bridges and cutting the telegraph wires behind them. On June 12 Jackson issued a proclamation calling into active service fifty thousand state militia "for the purpose of repelling invasion and for the protection of lives, liberty and property of the citizens of the state." Boonville and Lexington were designated as the concentration points. The proclamation was the signal for civil war in Missouri. The state was in an uproar of preparation. Non-Union sentiment had spread with tremendous results. Missouri, if not officially, certainly was actually in a state of rebellion against the central Government.

The advantage of getting control at the outset was apparent to both sides. Lyon, the man of action, immediately issued orders. Generals Sweeney and

Sigel were sent with three thousand men to the southwest to intercept the retreat of Jackson and Price should they undertake to effect a junction with Gen. Ben McCulloch, who was concentrating an army in northwestern Arkansas for the invasion of Missouri. On June 13 Lyon himself moved on Jefferson City with two thousand men. His army arrived on June 15. General Price and Governor Jackson with some volunteer troops had left for Boonville, fifty miles up the Missouri river, on the 13th. Price's troops, numbering three or four thousand, were without training and were poorly equipped. Not more than one thousand two hundred of them had arms of any kind. Price became ill and left for his home in Chariton county on June 16. General Lyon's troops took three river boats, steamed up the river and landed seven miles east of Boonville at 6:00 a. m. on the 17th.

Both Jackson and Price seriously questioned the propriety of offering battle with their poorly organized and armed forces, but the state troops were "full of fight" and insisted on an encounter. Under the immediate command of Col. John S. Marmaduke they marched to meet the advancing Federal columns, took up a position and formed line of battle about four miles east of Boonville. Lyon and Blair attacked with infantry and artillery. At first the state troops put up a stout resistance, but soon broke and fled in disorder. No more than five hundred of Lyon's men were actually engaged at any one time. The state troops numbered about one thousand five hundred, not all of whom took part in the fighting. Three men were killed on the Federal side and nine wounded. On the state side two were killed and several wounded.

Lyon's troops marched to Boonville and took peaceable possession of the city and a quantity of state supplies. The state troops accompanied by Governor Jackson, fell back toward Arrow Rock, and later to Lexington.

At Boonville, General Lyon issued a proclamation "to the People of Missouri" in which he assured them that it was his intention to use the force under his command for no other purpose than for the maintenance of authority of the general Government. He offered pardon to all those who would return to their homes and relinquish hostility towards the United States. Many did so.

Civil War was now fairly inaugurated. Federal troops poured into the territory and, because of the dispersion of the main state force, were temporarily able to overrun the state and prevent its secession from the Union by sheer military force. The desperate and determined nature of the struggle for Missouri may be estimated from the fact that during the year 1861, from the capture of Camp Jackson to the fight at Mount Zion Church early in December, not less than sixty battles and skirmishes occurred between the contending forces. The territory continued to be a bloody battleground throughout the war. It was no doubt saved to the Union by the early and energetic actions and the uncompromising attitude of a little, peppery, fighting, Regular Army captain, and the initial victory of his troops.

Although the battle was only a slight skirmish, it was most significant in immediate results:

First—it put a check for the time

being upon enlistments in Price's army.

Second—when Lyon was not stopped at Boonville much of the state's southern ardor was at least temporarily checked. Many of the volunteers returned to their homes.

Third—it gave the Federal troops possession of a highly strategic point on the Missouri river. The possession of this point opened the way for making an effective attack upon Price, who had resumed command of a considerable force at Lexington, or for turning attention to the state forces concentrating on the Osage river.

Fourth—Governor Jackson a few days after the battle went to Arkansas to solicit aid from General McCulloch in command of the Confederate forces in that state. The Osage river enters Missouri from Kansas about sixty miles south of Kansas City, flows in an easterly and northeasterly direction, and empties into the Missouri a few miles below Jefferson City. It formed a natural line of defense. This section was almost solidly non-Union. Lyon moved towards the southern part of the state to prevent hostile concentration on the line of the Osage and to thwart any move that might be made by Confederate forces to invade from Arkansas.

Fifth—the effect of the battle was national in nature. It was heralded as a great Union victory. Soon after the event Francis P. Blair left for Washington to take his seat in Congress. Enroute through Illinois, Indiana, and Ohio he was given a continual ovation. This first land victory after the fall of Fort Sumter was a great factor in boosting the morale of the northern states. It had a corresponding depressing effect on the spirits of the people of the south.

Comments

The active operations of the Civil War covered a period of four years. From month to month and year to year the final result of the desperate struggle was in the balance. The south, outnumbered in manpower and other resources, was superior in leadership and morale, and fought with a desperation and unity of purpose that compensated for the north's superiority in numbers and means.

All things considered, the two factions were evenly matched. A material advantage to either side, such as the support or nonsupport of one or more of the great states, would doubtless have been a decisive factor. The position of Missouri was doubtful in the spring of '61. Apparently ready and willing to cast her lot with the slave-holding states, she needed only the military advantage of a decision at arms to have consolidated the non-Union sentiment, given the courage of conviction to her secessionist governor, and definitely aligned this great and comparatively powerful commonwealth with the southern cause. Doubtless this condition would have been brought about by a defeat of Lyon's troops at Boonville. All the territory north of the Missouri river would then have been free from invasion for some time, with an opportunity to organize, arm, train, and equip a formidable army.

Tremendous resources which were soon diverted to the Union cause would have been saved to the state. The enthusiasm and morale of the avowed non-Unionist would have been consolidated and a great majority of the wavering and conservative element, which later remained neutral or definitely espoused the Union cause, would have cast its lot with the south. (In the end, of the two hundred and twelve thousand men of military age, one hundred and ten thousand joined the Federal forces, and only forty

thousand joined the Confederate forces.)

The defeat of Lyon would have invited and made probable the invasion of the state by General McCulloch's troops from Arkansas, and the securing of the great lead and zinc mines at Joplin and Carthage. The Missouri river, which became a great northern highway for the Union not only through Missouri but to free-soil Kansas and those states to the northwest, would have remained with and been a decided strategic advantage to the southern armies. Difficulties would have been added to Federal control of the Mississippi. Missouri would have formed a wedge between Kansas and the eastern states. The great and populous manufacturing city of St. Louis would have been of inestimable strategic and commercial importance to the south.

The defection of Missouri would have added greatly to the potential resources of the south. For example, the available manpower of military age would have been increased twenty-four per cent; manufacturing facilities, twenty-two per cent; and agricultural resources, eight per cent. Missouri had more horses and mules than any southern state, was the principal lead and zinc producing area of the Union, and had a considerable iron mining industry—all of which would have met desperate shortages in the Confederate's sources of supply.

The great State of Missouri, possessed of tremendous resources and occupying a strategic location, needed but little encouragement to have definitely cast her fortunes with the southern cause. Had she done so this act would no doubt have influenced other border slave-holding states—Delaware, Maryland, Kentucky—to follow her example. With these states, or any of them, also definitely taken out of the neutral column and added to the Confederate strength, would any such realignment of forces have been of vital effect in the final outcome of the great Conflict?

The outcome of the decision at Boonville was never for an instant in doubt. But how different it might have been if the arsenal at St. Louis had fallen into state hands, as it might well have done had not Lyon, the staunch Unionist, been in command. How different it might have been if after the call of Governor Jackson the state troops had been allowed a few days longer to arm and organize, if the competent general, Price, had not been afflicted with illness at the time when his services were so badly needed, if wiser counsel had prevailed and the state troops had fallen back and delayed the first actual encounter until such time as they could have taken on some semblance of a fighting force. How different it might have been if the Union commander had been of the temporizing nature so characteristic of many Union commanders, what if any one of a dozen such contingencies had prevailed? The result of the first actual clash at arms in Missouri might have been entirely different.

The site of the Battle of Boonville is unrecorded. The importance of the engagement is not generally recognized, and few who participated in it are now alive. The scene of this skirmish, which undoubtedly had an important bearing on the outcome of the Civil War, should be appropriately marked and preserved for the benefit of posterity and to the honor and success of the Union.

Motorized Communications

CAPT. DONALD A. STROH, Infantry

AN article in the October INFANTRY JOURNAL on the subject of Infantry Communications points out a condition in this phase of Infantry training which is worthy of serious consideration. Captain Colby's opinion that we cannot give adequate attention to this vital subject on account of the widely scattered elements of most of our Infantry brigades, is correct. The remedy that he suggests, concentrating the communications elements of each brigade in one post, is ideal but probably far from realization.

At Fort Hunt, Virginia, the 16th Brigade achieved a partial solution of the problem during the past summer by the establishment of a communications school for the training of all communications troops of the brigade.

The object of the school was twofold. The primary purpose was to perfect and coordinate the training in communications of the scattered elements of the brigade, to develop teamwork within the brigade, and to prepare for the annual fall maneuvers and tactical inspection. The secondary purpose, and probably the one of greater immediate interest, was to experiment with the limitations and capabilities of the newly acquired motorized equipment of the Communications Platoon, 34th Infantry.

The exclusive use of motor equipment for the establishment and maintenance of communications supplied a unique and interesting field for technical and tactical experimentation.

The following units assembled at Fort Hunt by motor transportation on August 20:

Communications Plat., 16th Brig.—1 officer and 23 enlisted men;
Reg't'l Hq. Sect., 1st Bn. Sect. and 3d Bn. Sect., Communications Plat., 12th Inf.—3 officers and 33 enlisted men;
Reg't'l Hq. Sect., 1st Bn. Sect. and 2d Bn. Sect., Communications Plat., 34th Inf. (Motorized)—3 officers and 33 enlisted men.

The brigade communications officer acted as senior instructor of the school. Other officers acted as assistant instructors, and as regimental and battalion communications officers, their normal assignments within their respective regiments. There were present, therefore, the complete communications units of four battalions, two regiments, and the brigade. Other elements are inactive.

The brigade platoon was equipped with its normal animal-drawn and hand-drawn transportation. The 12th Infantry element was present without animals, and operated exclusively with hand-drawn transportation. The 34th Infantry platoon was equipped with five-passenger Chevrolet touring cars, three-quarter-ton Chevrolet trucks, all with oversize pneumatic tires, and motorcycles. The diversity of transportation permitted interesting comparisons.

Motor vehicles of the 34th Infantry were tentatively allotted as follows, for the transportation of personnel and equipment:

To each battalion section:
1 motorcycle with side car;
2 touring cars;
2 trucks.
To the regimental section:
1 motorcycle with side car;
4 touring cars;
3 trucks.

Within each battalion section the initial load of the No. 1 truck was two

experimental hand carts containing all the wire and radio equipment of the section, one RL-16 cart, and two miles of wire. The No. 2 truck carried three miles of wire.

This loading proved to be unsatisfactory. The RL-16 and certain of the wire equipment was accordingly transferred to the No. 2 truck, permitting No. 1, with the radio equipment and the remainder of the wire, to move rapidly to the position of the new command post when a displacement became necessary.

Within the regimental section the initial tentative loading proved satisfactory, and was retained. The No. 1 truck carried the regimental wire equipment in one experimental hand cart, one RL-16, and one mile of wire. The No. 2 truck was loaded with the regimental radio equipment. The No. 3 truck carried additional supplies of wire and an improvised wire-laying apparatus.

Every effort was made to reduce fatigue and special duty details to the minimum. Regimental detachments were messed with the permanent garrison of Fort Hunt. During the entire course of instruction there was not a single case of absence without leave. Sickness was very rare. An average of ninety-five per cent of all personnel was present for daily instruction, and one hundred and thirty-nine hours were actually devoted to communications training during the month, exclusive of holidays, inspections, and other training losses.

Training was divided into two phases. During the first two weeks the radio sections of the seven communications groups were combined for intensive technical instruction under a commissioned instructor, assisted by a selected noncommissioned officer, both graduates of recent courses at the Signal School. Similar groupings were made of the wire sections and of the message center sections for technical instruction. Message center sections were taught the simplified message center procedure as adopted by the Infantry School, which has been prescribed for use, with excellent results, throughout the 16th Brigade. The final two weeks of the course were devoted to a series of ten field exercises, laid on the terrain in the vicinity of Fort Hunt, and designed to utilize the mobility of the 34th Infantry.

At the conclusion of the first training phase it was felt that all personnel had received technical instruction impossible at the permanent posts of the detachments. Procedure throughout the brigade had been standardized. Everyone talked the same language. Radio and wire operators had improved their speed and accuracy. The groups were prepared to work efficiently in the field.

The field exercises, which comprised the second training phase, involved situations of the brigade in attack, defense, delaying action, pursuit, and withdrawal. Each problem was complete in itself. Certain of them, however, lasted more than one day. In every instance the four battalion, two regimental, and one brigade command posts were actually established, with wire and radio nets complete. The operation of the foot- and animal-drawn elements were normal; those of the motorized elements decidedly different and productive of many illuminating deductions.

Some of the outstanding results ob-

tained in the operation of motorized communications are given below.

a. An improvised device for laying and recovering wire from a moving truck was tested, and with certain slight modifications will prove of value. Manufactured in the ordnance shops at Fort Eustis, it is designed to hold two miles of outpost wire on four RL-16 spools. Wire may be laid, under favorable conditions, at a maximum rate of twenty miles per hour. Under the same conditions, wire can be recovered satisfactorily at the rate of ten miles per hour. This device was found superior to the RL-16 cart mounted on a truck for laying and recovering wire.

b. For laying wire along roads the most efficient use of personnel required the services of three linemen, in addition to the driver. One lineman was on the truck to govern the speed of the reels; one was equipped with a short pike to lay wire along side of road; and one, using motorcycle and side car to follow the truck by bounds, was charged with placing wire off road, and making necessary ties, overhead crossings, underpasses, and the like. The motorcyclist could well be dispensed with on cross-country movements.

c. While a maximum speed of twenty miles per hour was attained by wire-laying vehicles for short distances and under the most favorable conditions, it was found that this speed could not be approached on long lines laid along roads over which wheeled traffic could be expected. It is probable that the maximum effective rate under these conditions would be about five miles per hour, resulting in a net speed of complete wire installation of about three miles per hour, or about twice that of unmotorized construction units. In actual campaign in open country, over terrain that the motor equipment available can negotiate, where the destruction of fences is not a consideration, and where wire can be laid without serious danger of destruction by wheeled transportation, it is entirely probable that motorized units can do wire construction at a net speed of ten miles per hour.

d. When moving as a convoy on average roads, the vehicles were capable of an average speed of seventeen miles per hour. It is believed that the same convoy, when moving across open country, could average about half of this rate. Except for oversize tires, the vehicles supplied to the platoon are not essentially equipped for cross-country travel. Nevertheless they are capable of negotiating surprisingly rough, steep, or swampy terrain.

e. One or both of the cargo vehicles allotted to each battalion section could probably be eliminated if a light cargo body could be constructed to be mounted on a motorcycle in place of the side car.

f. The present type of five-passenger cars with which the platoon was equipped is believed uneconomical of road space, passenger-carrying capacity, and drivers. A ten or fifteen-passenger bus-type vehicle would be satisfactory for communications work and would release three vehicles and drivers for other purposes.

g. It was found impracticable, with present equipment, to maintain radio communication between a stationary station and a moving truck column. This feature would not only be desirable, but essential to the success of a fast-moving situation, in which the

mobility of a motorized regiment could be utilized to best advantage.

h. Complete regimental wire and radio nets were established, by use of motor equipment, with wire lines to two battalions up to nine hundred yards in length, in from fifteen to forty minutes from the time the motor column halted.

i. The regimental 79-A radio set can be unloaded from a truck, set up, and communication established with the brigade over an airline distance of at least ninteen miles, in ten minutes.

The operation of the school not only provided initial tests of motorized communications equipment, but also developed weaknesses in technical and animal-drawn equipment. Some of these are:

a. The 77-B radio set is too heavy, has too short a range, and its tube equipment is obsolete when compared to modern commercial development. While communication was maintained in one problem over an air-line distance of four and five-tenths miles, this was exceptional and was attained only under the most favorable conditions. In general the operation of these sets was uncertain and unreliable.

b. The RL-16 cart is much too light and fragile. It did not stand up over rough country or while being transported by truck on rough roads. The reels with which it is equipped are too light and do not have sufficient capacity for wire.

c. Outpost wire proved to be not sufficiently strong for fast laying.

d. The necessity was apparent for some device which would permit carrying wire on commercial spools, thus eliminating rewinding, and affording greater capacity without splicing.

e. The K-1 reel cart is much too heavy and has too little wire capacity.

The communications units returned to their home stations on September 20. Three weeks later the brigade, with artillery, cavalry and tanks attached, assembled at Fort Meade for ten days of maneuvers. Throughout the entire period, involving numerous exacting and difficult operations, including one night withdrawal, communications within the brigade worked perfectly. Combined training was the sole reason for accurate and satisfactory performance.

"Efficient signal communication is vital to combat success," Training Regulations 160-5. We cannot have efficient communication without combined training. We cannot combine training in scattered posts. A communications school along the lines of that of the 16th Brigade furnishes an approved solution to this problem in Infantry training.

Age-Old Wisdom

SIR HUMPHREY GILBERT, half-brother of Sir Walter Raleigh—the two fathers of American colonization—said:

"He is not worthy to live at all, that for feare of danger of death, shunneth his countries service and his owne honour."

Organization and Composition of a Mechanized Force

LIEUT. DACHE M. REEVES, Air Corps

In submitting the present paper Lieutenant Reeves wrote as follows:

"There has been much discussion of armored forces, but mostly of a general nature. I believe that the time has come to go into detail. Of course any discussion of detail must be in the nature of an estimate, and thus a personal opinion.

"It is important that the Army have a permanent armored force, however weak, and it is with the hope that this discussion may aid the cause that I have written it.

"I have said nothing about whether the force is to be controlled by Infantry, Cavalry, or a separate Tank Corps. This is a controversial matter and I have tried to eliminate such subjects.

"As Division Air Officer of the Philippine Division I am in close touch with all units of the division, and in fact, spend most of my time working with ground troops. From all signs and omens the next divisional maneuvers will be full of interest."—EDITOR.

IT IS axiomatic that fire and movement are the fundamental factors in warfare. Any means of increasing either or both of these factors affords greater efficiency in battle. Hence the introduction of a new weapon usually affords direct advantage, but the proper employment of such weapon can be learned only after considerable experiment and experience.

This is especially true with such a weapon as the tank, which combines both fire-power and mobility. The first tanks were used solely to support infantry attacks, and their slow speed made them unfit for any other purpose. Gradually our own and other armies produced improvements in reliability and in speed. As a result the fast tank became a reality. This led to the realization that the great mobility of fast tanks would not be fully utilized if tanks were restricted solely to an auxiliary rôle, and the idea of also using independently naturally followed. Tanks would then need help from other units for reconnaissance, supply, and the like. But as these supporting units would have to be motorized in order to obtain sufficient speed, we came to the conception of a unified mechanized force.

The creation of a mechanized force has been difficult. The composition and employment of such a force were an unsolved problem. Progress has been largely along mechanical lines, and faster tanks have been designed without a clear idea of their use, as it was generally evident that increased speed would be of value. On the other hand, discussion of the possible employment of fast tanks before such tanks were a fact was necessarily speculative.

It is now possible to emerge from the theoretical phase and establish a foundation for mechanized operations. England organized a provisional armored force and used it last year under field conditions; and in this country we made a beginning with the experimental mechanized force assembled at Fort Meade in the summer of 1928. Sufficient time has elapsed since these experiments for an analysis of results. Naturally there are differences of

opinion on many points, but after eliminating controversial matters, there remains a number of conclusions which meet with general agreements.

These conclusions may be summarized briefly as follows:

1. We should develop mechanized force, in addition to such armored units as are organized primarily to support infantry attack.

2. A mechanized force should consist of tanks supported by mechanized units of other arms.

3. A mechanized force should be self-contained, with adequate auxiliary units for reconnaissance, maintenance, and supply.

4. A mechanized force should include self-propelled artillery, preferably also armored.

Using the foregoing conclusions as a basis, and drawing on the experiences of our own and other mechanized forces, we can make a beginning toward devising sound doctrines of organization and employment.

It is first necessary to determine the purpose of a mechanized force, for the work that we expect to do with it should control its composition and organization. It is not essential to determine all probable or possible uses of a mechanized force, if we can establish the general mission. Maj. C. C. Benson expressed a clean and brief statement of this mission:[1] *"The purpose of a mechanized force is to provide army and higher commanders with an additional powerful weapon, which will combine fire-power, shock, and speed to a much higher degree than now exists in any one (ground) combat arm."*

COMPOSITION

What kind of a force do we need for this mission?

Let us consider the main body first. This will consist of fast tanks as the basic arm, supported by a suitable amount of artillery. At least one hundred tanks are necessary to provide adequate offensive power. Adding twenty tanks to allow for the fact that a proportion of the tanks will be out of commission at all times, the strength becomes one hundred and twenty fighting tanks. The organization of these tanks into units we shall discuss later, but it is worth noting here that present tables of organization are totally unsuited for inclusion in a mechanized force, and that it will be necessary to break new ground.

The kind of tank required for a mechanized force is one which has as minimum specifications a speed of twenty miles per hour across level fields, an armament of at least one .30 caliber machine gun and one three-pounder cannon, sufficient armor to be proof against .30 caliber fire, and a weight low enough to permit transporting the tank on a commercial truck.

The inclusion of heavy tanks in the force is not advisable. They cannot keep up with fast tanks and are too heavy for truck transportation. However useful the heavy tanks may be in breaking through strongly defended positions, they are not as suitable for a highly mobile force. A combination of fast tanks and accompanying artillery will be adequate against any usual objective of a mechanized force.

For cross-country use, it is essential that tanks be equipped with running

[1] Mechanization Aloft and Alow, INFANTRY JOURNAL, January, 1929, page 21.

gear of the track-laying type. On the other hand, the tanks may have to travel long distances on roads before deploying, and the track laying chassis is inferior to wheels for use on hard roads. The experiments with a convertible chassis which can be changed quickly from tracks to wheels, or vice versa, if successful, will solve this problem. Until such a chassis is produced, a mechanized force must be prepared to transport its track-laying units in trucks when the situation so demands.

Heavier guns than the tanks carry are provided by a mechanized artillery regiment, consisting of

1 Bn. 75-mm. (12 guns),
1 Bn. 155-mm. (8 guns),
1 Bn. Chemical Warfare Mortars (8 mortars),
1 Service and Hq. Bn.

All of the guns of this regiment will be mounted on fast self-propelled mounts of a track-laying type. Auxiliary vehicles will be mounted on fast tank chassis.

The proportion of one regiment of mechanized artillery to one hundred and twenty tanks is based on the minimum artillery support which will probably be necessary. Under some conditions the tanks will require practically no artillery support, and it is important to keep the size of the force as small as is consistent with its usual missions. When greater artillery support is necessary, we can attach additional artillery units to the force.

In addition to the main fighting body, units are necessary for reconnaissance, security, communications, and field engineering. These can be conveniently grouped in a

LIGHT MECHANIZED REGIMENT

1 Armored Car Bn.:
  3 Armored Car Cos.,
  1 Bn. Hq. Co.

1 Mechanized Inf. Bn.:
  2 M. G. Cos. (12 guns each),
  1 How. Co. (12 antitank cannon),
  1 Bn. Hq. Co.

1 Service Bn.:
  1 Communications Co.
  1 Engr. Co.
  1 Service Co.
  1 Hq. Co.

The armored cars are for reconnaissance, advance guards, protection of the line of communications, and to a limited extent for use in independent raids.

The mechanized infantry is primarily to hold objectives that the force gains; secondary missions will be to protect bridges or other important points and to assist the engineer company in aiding the passage of tanks over obstacles. The battalion should be equipped with an armored infantry carrier, consisting of some form of armored body on a fast tank chassis. The infantry is the part of the force which is most vulnerable to attack from the air, and the use of ordinary trucks or cars for their transportation is entirely too dangerous. The antitank cannon of the howitzer company should be permanently carried on armored self-propelled mounts.

The service battalion will take care of communications and field engineering. The engineer company will have portable bridge sections. The exact equipment and composition of the companies of this battalion can be determined only by experiment and field tests.

A combat train is a necessity in order to insure continuity of supply and permit as large a radius of action as possible from the base. The train will consist of:

1 Ordnance Maintenance Co.,
1 Motor Repair Sect.,
1 Ammunition Tn.,
1 Gas Tank Co.
1 Motor Transport Co.

Additional truck units will be attached when necessary for the transportation of track-laying vehicles over hard roads for considerable distances. Incidentally the field service truck used by the Air Corps for carrying gasoline, oil and water may be modified to meet the needs of fuel supply for armored units.

The train will normally operate a considerable distance in the rear of the combat units. It can, therefore, use unarmored wheeled vehicles. The purpose of the train is to establish bases for refueling and repair.

A mechanized force is unlike any existing military unit. In its form of organization it will have to blaze an untried trail. It is desirable to employ unit organizations similar to those already in use where possible, with such modification as is necessary. For this reason we may use the regimental rather than some such system as "combat group" or "security group." Taking the tanks first, it is apparent that present tables of organization are totally unsuited to a mechanized force. One hundred and thirty-five tanks are entirely too many to be controlled by one regimental commander. The responsibility of directing the operation of a tank is at least equal to that of directing a 75-mm. gun, yet an artillery regiment has only 24 guns. Another defect in present tables is the excessive overhead of personnel.

As a basis for discussion, we may organize the tanks into a regiment of two battalions of three companies each, with each company operating ten tanks. This gives a total of sixty fighting tanks per regiment, and the one hundred and twenty tanks. Thus we arrive at an organization of a brigade of two regiments for the tanks of a mechanized force:

ORGANIZATION OF TANK BRIGADE

Brig. Hq.,
2 Tank Regts.,

Each Regt.:
1 Hq. and Hq. Co. (1 command tank),
2 Bns.
1 Serv. Co.

Each Bn.:
3 Tank Cos. (1 command tank),

Each Co.:
3 Plats., 3 tanks each,
1 Command Tank (fighting).
Total, 60 fighting tanks, 5 command tanks per regiment.

Extensive field exercises will be necessary before this detailed organization can be more than an estimate. It will probably be desirable to divide each unit into a forward and a rear echelon. In a tank company the forward echelon can consist of only the tanks and their crews. The rear echelon can consist of all other personnel.

The units of the "light mechanized regiment" have a regimental organization in order to provide ease of control and supply. The armored car battalion and the mechanized infantry battalion are tactically separate organizations, but the administration is combined. The same is true of the companies that make up the service battalion. It may seem that the duties of these various units are so dissimilar that a regimental organization is impracticable, but the Air Corps has had a similar problem of organization. Normally a group (the Air Corps regimental organization) is composed of units of one type, such as all pursuit. But at places where only a small unit of each type of aviation is stationed a composite group is formed, composed of pursuit, bombardment, and observation squad-

rons. Despite the great difference in operation of the different classes of aviation, the composite group has been found to work satisfactorily.

The armored car battalion should be organized on the echelon principle. The crews of the cars (including command cars) constitute the forward echelon, and all other personnel and vehicles the rear echelon. Personnel in this unit for repair and supply of armored cars should be at a minimum, reliance being placed on the train for everything except minor repairs. Every additional man restricts the mobility of the unit to some extent.

The machine guns of the mechanized machine gun companies should be permanently mounted on a trailer, ready for immediate use. They should be capable of high angle fire against aircraft, and the mount should be maneuverable by hand across country. The Matthews' mount may be satisfactory if arranged to tow behind an armored infantry carrier.

Air reconnaissance and support are necessary for a mechanized force. This does not require that any air units be an integral part of the force. It is the duty of G. H. Q. aviation to establish air supremacy and keep down the operation of the enemy's aircraft.

An important element in reconnaissance will be the use of command airplanes, to enable the commander or members of his staff to see the type of terrain in front of the forces. Airplanes will also be useful to transport commanders from one portion of the force to another. The direction of combat from the air, as has been proposed, is not practicable.[2]

Air reconnaissance and observation required by a mechanized force are provided by detailing an observation air unit to the force. In time of peace, it may be advantageous to assign a flight of observation planes to the mechanized force for experimental operation.

The special troops of the force are a force headquarters and headquarters company, and a medical battalion. The medical battalion is similar in organization to the present medical squadron, cavalry division, except that the veterinary unit is omitted, and no animal drawn vehicles are used.

COMMAND

Because of the high mobility of a mechanized force, the control of the operations is a difficult problem. It is essential that sufficient staffs be provided to ensure that command work is adequately performed.

The force will require a headquarters similar to that of an infantry division. Specifically, the personnel is:

Mechanized Force Commander;
Aides;
General staff:
  Chief of Staff
  A. C. of S., G-1,
  A. C. of S., G-2,
  A. C. of S., G-3,
  A. C. of S., G-4;

Special Staff:
  Adjutant,
  Inspector,
  Air Officer,
  Signal Officer (C. O. Communications Co.),
  Engineer Officer (C. O. Engineer Co.),
  Chemical Warfare Officer,
  Surgeon (C. O. Medical Battalion).

The force headquarters operates in the rear echelon.

The two tank regiments are organized into a brigade with a suitable

[2] See "Commanding Generals Aloft," INFANTRY JOURNAL, Aug., 1928, p. 166.

brigade staff. Appropriate staffs are provided for the mechanized artillery regiment, the light mechanized regiment, and the combat train.

The organization of the force is similar to that of a division, and may be conveniently designated as such. As the main fighting arm is the tank brigade, the whole force may be called a tank division, instead of a mechanized force, as the latter designation is indefinite.

All staffs should be as small as is consistent with the proper performance of their duties, and emphasis should be placed on mobility. A logical chain of command is provided in the organization outlined above. Though it may appear that the number of headquarters staffs is excessive, it should be borne in mind that the units of the force may be widely scattered, and it is essential to have an organization that will control all elements in any distribution of the force. Adequate ground means of control are necessary.

STRENGTH OF THE FORCE

The composition of the mechanized force, organized as discussed in this paper, is summarized in Table 1.

The fire-power of the Tank Division consists of:

Tank Brig.—
120 tanks—120 three-pounder cannon,
120 machine guns;

Mech. F. A. Regt.—
12 75-mm. guns,
8 155-mm. guns,
12 C. W. mortars;

Lt. Mech. Regt.—
36 armored cars—36 machine guns,
2 M. G. Co.—24 M. G.,
Hq. Co.—12 antitank cannon;
Total—120 tanks,

36 armored cars,
120 three-pounder cannon,
12 75-mm. guns.
8 155-mm. guns,
12 C.W. mortars,
12 antitank cannon,
180 M. G.

REDUCED STRENGTH

Unfortunately the organization of a tank division at full strength is not probable for a long time. Hence, it is necessary to reduce the table of organization to a peace basis. This is a difficult task, as a small skeletonized organization cannot be as efficiently constituted as a force at war strength.

As a tentative solution, the following organization is offered.

EXPERIMENTAL MECHANIZED FORCE
(Reduced Strength)

EMF HQ (inc. attached Med.),
One Tank Bn.,
1 Mech. M. G. Co.,
1 Mech. 75-mm. Btry.,
1 Armored Car Co.,
1 Field Co.,
1 Eng. Plat.,
1 Com. Plat.
1 Serv. Plat.,
Train—Motor Rep. Det.,
Ammunition Det.,
Motor Transport Det.

TABLE 1

COMPOSITION OF A TANK DIVISION

TANK DIV. HQ.

STAFF

TANK BRIG. BN. HQ.	MECH. F. A. REGT.	LT. MECH. REGT.	COMBAT TR.	SPEC. TR.
Tank Regt. Tank Regt.	Hq. and Hq. Co.	Hq. and Hq. Co.	Hq.	Hq. Co.
Hq. & Hq. Co.	3 Bn. Hq.	3 Bn. Hq.	1 Ord. M. Co.	Med. Bn.
2 Bn. Hq.	1 75-mm. Bn.	1 Arm. car Bn.	1 Motor Rep.	
6 Tank Cos.	1 155-mm. Bn.	1 Mech. Inf. Bn.	Section	
1 Serv. Co.	1 C.W. Bn.	1 Serv. Bn.	1 Amm. Train	
	1 Serv. Batt.		1 Gas Tank Co.	
			1 M. T. Co.	

TABLE 2

SPECIAL TROOP

EMF HQ HQ. PLAT.

ATTACHED MED.

TANK BN.	COMPOSITE BN.	FIELD CO.	TRAIN
Bn. Hq.	Bn. Hq.	1 Engr. Plat.	Train Hq.
3 Tank Cos.	1 Mech. MG Co.	1 Com. Plat.	Am. Det.
1 Tank Serv. Co.	1 Mech. 75-mm. Batt.	1 Serv. Plat.	Motor Rep. Det.
	1 Armored Car Co.		Mot. Trans. Det.
	1 Serv. Co.		

This force may be organized as shown in Table 2.

This reduced strength force would possess a fire power of

30 tanks,
30 three-pounder cannon,
4 75-mm. guns,
12 Armored cars,
54 Machine guns.

A permanent armored force, however small or incomplete, affords a better basis for development than a force temporarily assembled. A permanent experimental mechanized force can vigorously attack the problems of the operation of armored forces and make definite progress toward their solution.

The First Magazine Rifle in the Army

From the Notebook of "General Experience"

THE first magazine rifle which the Army used in any quantity was the Henry rifle. Union troops used it in the Civil War. The Federal government purchased only one thousand seven hundred and thirty-one of these weapons, but various state troops procured about ten thousand through private purchase.

The Henry rifle fired a .44 caliber conical bullet that weighed two hundred and sixteen grains. Its fire was much disliked by the Confederates, who called it "that damned Yankee rifle that can be loaded on Sunday and be fired all week."

The Fort McKinley C. M. T. Camp of 1929

CAPT. CHARLES S. COULTER, Infantry

GENERAL SUMMERALL said of the 1929 Citizens' Military Training Camp at Fort McKinley, Maine: "It is undoubtedly the finest camp of its kind in the whole United States."

Maj. Gen. Preston Brown, commanding the 1st Corps Area, in which there were four camps of its kind, said: "This is the finest camp that I have ever seen during my whole experience of years with the C. M. T. C."

Distinguished citizens of our own and other lands watched the troops at work. They expressed themselves as amazed that boys, without months of drill, or even after months of drill, could so perfect themselves in the drill that the regiment and parts of the regiment performed every afternoon.

All of this is high praise for the Citizens' Military Training Camp at Fort McKinley, Maine, which was held during the month of July this year. Col. John W. Wright, 5th Infantry, commanded the camp and the instructors and the enlisted cadres came from the 5th Infantry, two battalions of which have Fort McKinley as a year-round home.

About nine hundred and fifty candidates applied for admission to the camp and were accepted. Of these, about twenty failed to show up when the camp opened, and the enrollment amounted, in round numbers, to nine hundred and thirty-five. The young men came from city and town, high school, college and workshop. The only thing that they seemed to have in common was that all were white. Racially, religiously, and in wealth, they differed as any true cross section of citizens will differ.

What was it then that made this camp so much better than any other camp in the country? What made it so good that the Chief of Staff of the Army, and other disinterested persons, did not hesitate to give it the palm of leadership?

The question was asked repeatedly. Citizens of Maine, from Governor William Tudor Gardiner down, were interested, because there has been a deal of gossip about the possibility of abandoning Fort McKinley as a camp site in favor of Camp Devens, at Ayer, Massachusetts.

Officers from other camps and other corps areas were interested, for they wanted to find the secret to make their own camps outstanding in another year. The site (Fort McKinley is situated on one end of Great Diamond Island, in Casco Bay); the food, and its preparation and quantity; the entertainment and recreation furnished the men; the living conditions, in the brick barracks of the post, instead of in tents; all of these and many other things were the subject of inquiry.

All seemed to lead nowhere. Finally a public statement of the camp commander started investigators on the right track. He said: "It is because the camp belongs to the youngsters themselves. It is what they make it, and they have a high morale and a

splendid spirit that carry them to the highest point in training."

The fact was indeliby impressed upon all professional soldiers that the youngsters constituted a unique body. As has been pointed out, they furnished a true cross section of New England, or, more particularly, of Northern New England, that section which furnished the first battles of the Revolution and which, with the single possible exception of the War of 1812, has responded to every call made upon it.

No radicals were enrolled in the camp this year; nor any atheists or agnostics. All of the young men had decided religious leanings. Each year it is the policy of the War Department to make a part of the instruction in every camp a Sunday service of some sort for every student. Those who elect to attend the Protestant service are grouped in one part of the camp on Sunday morning; the Catholics are sent to another gathering place; the Jews to still another; and finally, those who do not desire to attend religious services are grouped about the bandstand or near the camp headquarters, where they are given an hour's patriotic instruction. This year at Fort McKinley, of the nine hundred and thirty-five who were enrolled, not a single man elected to stay away from church on Sunday morning.

Let us look at these young men. What were their backgrounds in race, environment, wealth, and education?

All were Americans, of course. But the stocks from which they came were as diversified as one could imagine. Some were the sons of recent immigrants, while others were scions of forbears who had helped drive the British back from Concord to Boston in 1775. Anglo-Saxon, Scandinavian, Germanic, Slav, Latin, Near-Eastern, Greek, all and many more were represented.

They came from homes of wealth, homes of comfort and homes of poverty. Some of the young men were brought to Portland in the family car, with a chauffeur handling the wheel; others walked part way and "hitchhiked" the rest in order to save a bit of money from the government transportation furnished them, so that they might have a little spending money in camp.

Some boys were from high schools; three large groups came from the Boston English, the Haverhill, and the Lowell High Schools. Some came from New England colleges—Harvard, Yale, Dartmouth, Brown, Boston, Amherst, Norwich, Colby, Bates, Bowdoin, and others. Some came from their work in stores and offices, in cotton or woolen mills or foundries.

But on arrival at camp all of these young men were classified as students or candidates, were enrolled in companies by lot, and were issued uniforms to replace the civilian clothes which were locked up for the duration of the camp. Thus all were placed on the same footing at once, and class distinctions ceased to exist as if by magic. During the whole of the camp there was nothing that remotely resembled class distinction, and the poor boy had just as much opportunity to become a student officer as the rich boy.

All Citizens' Military Training Camps are operated in basically the same manner, as laid down by the War Department. The instruction, the food, the uniform, the bedding, and the rules are all contained in one set of regulations issued from Washington.

The camp commander, however, found nothing to prevent his adopting several unique features that had never been tried before at a camp of this kind.

The first of these features was in the organization of the guard of honor. Company B, 5th Infantry, asked for the privilege of forming the Regular Army part of this guard. Out of their own money the men bought blue dress uniforms and formed the first platoon. Another platoon, made up of men six feet tall or very close to it, was the grenadier platoon. Next came the light infantry platoon, and last but not least, the fusilier platoon. The guard of honor set such a fast pace of training and with such high morale that it literally carried the rest of the camp along with it.

Another feature was a color scheme by which the members of one of the C. M. T. C. companies could be identified even when they were out of ranks and out of barracks. This scheme of distinction had never before been tried, but it was a huge success from the very start.

Shoulder tabs for the shirt and piping for the overseas cap were manufactured at Fort McKinley. When the young men registered, one of the first things handed them were these distinctive bits to add to their uniforms. One company had orange; one, purple; one, light blue; another, dark blue; another, green. The colors of the guard of honor were in keeping with the histories and traditions of the bodies that the platoons represented; the grenadiers wore light blue edged with gold; the light infantry wore the traditional green; and the fusiliers wore the light blue edged with red.

Student officers wore white Sam Browne belts, with brass trimmings, and carried swagger sticks made of empty rifle shells, highly polished. This latter touch was the thought of one of the Regular enlisted men who also manufactured all of the sticks.

By means of the color scheme, men of a company recognized their fellows whenever they met, and thus could foregather with their company mates instead of having to hunt in other companies for men from their home towns or schools. Company esprit jumped to a high mark.

The members of the guard of honor decided that they wanted to be as nearly perfect in close order drill as any student body had ever been. They announced that they could and would be better than any other camp in New England, and they spent some time looking over the moving pictures that had been taken during the 1928 camps in New England.

The drillmaster assigned to the grenadier platoon was the recruit drillmaster of the 5th Infantry, Sgt. John Swierzynski, an enthusiast if ever there has been one in the American Army. Combining efficiency with pleasing manners, he works throughout the daylight hours, imparting instruction to willing soldiers. But even Sergeant Swierzynski was not prepared for the enthusiasm of the youngsters under his command. They wanted to spend extra hours after supper at drill. The sergeant demurred, knowing that they had already worked longer than usual. "You are tired, and should be resting." was his first answer. "We'll match our endurance against yours, and make you quit," came back the platoon spokesman.

Seldom, if ever, has there been such a contest as was waged that first night

on the parade at Fort McKinley. Sergeant Swierzynski believes that snap and pep constitute two basic essentials for well-drilled troops. He keeps the cadence or pace up to the prescribed one hundred and twenty-eight a minute, and more often than not, exceeds that by from two to ten counts a minute. Back and forth, around and across the parade went the platoon. Every fifteen minutes or so the sergeant would stop and say, "You must be too tired to drill any more tonight, fellows. What do you say if we stop?" The answer was always, "No, *let's go,*" from every member of the platoon. And only darkness stopped the contest.

But when the young enthusiasts paraded in the afternoon, as they did every day, before companies of distinguished persons from all parts of the country, they had their reward. Their formations were excellent, precise, correct, and worthy of the highest praise. Only crack organizations could hope to equal them, and few could expect to excel in a fair competition. So fine and correct were the movements that visiting officers of the Army and the Navy marveled, and then wished that their own companies, battalions, or regiments might do as well on parade. Woe to the youngster who allowed his rifle to slope at the wrong angle, or who was out of step, or who did not maintain a perfect line on parade. He was told about it long and enthusiastically when the parade was over. But throughout there was that spirit of friendliness and helpfulness that made these critiques less harsh than the telling makes them appear.

The fame of the camp spread. On occasion, both of the government boats and other craft were needed to carry the crowds that wanted to see the Fort McKinley boys parade. On more than one occasion there were more than two thousand visitors grouped around the parade.

Of course, everything was not perfect. It never is in the military service. But the incidents that called for disciplinary action were few and far between. There was no single case of refusal to obey the few regulations necessary for the good conduct of the camp. One youngster, a student captain, was reduced for a night prank, and promptly showed his mettle by winning back his rank.

One who was familiar with the first Citizens' Military Training Camps held at Plattsburg in 1915 and 1916, could not help but compare that camp with this. Then the students were mature men, many of them already prominent in the business and professional world. They were preparing for war. They, almost alone of all the people of the country, foresaw the entry of America into the World War, and wanted to be prepared for their own individual parts. They were earnest, hard-working, and enthusiastic.

But they were no more in earnest than the youngsters at Fort McKinley this year. They were no more enthusiastic, nor were they harder working at the camp. It may be true that they had harder work to do throughout the month, but they did not approach their tasks with any greater spirit of willingness than did these youngsters this

As the camp commander put it, "It was their camp, what they made it," and they made it the best in the country. The nation need not fear as long as it raises such men as these.

Leon Trotski in Exile

Is the firebrand of the Soviet extinguished?

THOMAS CLEMENT LONERGAN

AN old man, broken in health stripped of his former prestige and power, foresworn of his erstwhile adherents, and exiled by decree from his own country, is living alone today, the virtual prisoner of the Turks, on the island of Prinkapo in the sea of Marmora. Does he ever, perchance, in the silent night that ends each day of isolation, look back in retrospect upon the scenes and triumphs of a life which in its course had pulsated vibrantly in certain events that shook the world? Does he ever revive the memory of earlier struggles whose conquest with the fire of his achievements had brought the proletariat of Russia to his very feet? And reminding himself, if he has indulged in such reminiscences, that it had always been his habit to turn momentary defeat into subsequent victory, is it possible that he ever calculates ways and means of regaining his lost influence?

Lev Davidovich Brohnstein, more commonly known under the *klichka* or alias of Leon Trotski, was born of Jewish parentage in 1887 near Elizabethgrad, province of Kherson, in the Ukraine. In 1898, while a student at the University of Odessa, he was arrested for his radical agitations amongst the student body. Two and a half years in an Odessa prison were followed by his exile to Uskut on the Lena river. He escaped in 1902, after serving a short period of his sentence, and fled to join the revolutionary colonies in western Europe.

Eventually reaching London, he established contact with Vladimir Ilijitch Ulianov, who was also called Nikolai Lenin. The latter with the aged philosopher Plekhanov, was engaged in founding the revolutionary paper *Iskra* (The Spark). It was proposed by Lenin that Trotski be invited to join the editorial staff of the paper but Plekhanov, the Bolshevik who, with the assistance of Lenin and one Peter Streuve, had founded the Russian Labor Party in 1898, objected because Trotski's political views, at this time of a decided Menshevik tinge, were not agreeable to him. Furthermore Trotski, even at this early stage, gave evidence of that impetuous independence of thought which would make itself amenable to no one—not even to the seer-leader Plekhanov.

In 1903 Lenin made another effort to introduce Trotski into the staff of the paper, although at this time the beginning of the political break between Lenin himself and Trotski was in embryo. There is no doubt that these moves of Lenin were made without the knowledge of Trotski, solely because of Trotski's unusual aptitude for analytical speculation and brilliance in dialectic writing. Plekhanov, however, remained adamant in his refusal.

Trotski was present at the second congress of the Russian Social Democratic Labor Party held in London in 1903. It was at this congress that the famous division of the communist element into the Mensheviki and Bolshe-

viki groups occurred. Trotski was regarded as a Menshevik, and thereby incurred the open political antagonism of Lenin. In consequence Trotski left London for Paris.

Nevertheless the following year, after having astounded the radical element in Paris by the perfection of his French in his addresses, he rejoined Lenin, Martov, Plekhanov, and the others in Switzerland. Lenin had begun another paper, the *Proletar,* but as he was constantly quarreling politically with Trotski there was no possibility of collaboration between the two. At one stage, a joint invitation from the staff of the paper was actually sent to Trotski, which he declined, giving as his reason "the pressure of other work."

During the next few years Trotski tried to assume the rôle of mediator between the Mensheviki and the Bolsheviki, but without success. Gradually he seems to have forsaken his Menshevik views, notwithstanding, and to have veered towards the extreme left Bolsheviks, also named the *Vperdovtsy* or "Forwards," in contradistinction to the right Bolsheviks or "Leninites." This probably resulted from his affiliation with the group that had surrounded Maxim Gorky and which included such prominent figures as Bogdanov, Lunarcharsky, Povrovsky, Alexinsky, and Axelrod.

His almost ecstatic belief in revolution as the preliminary step towards the readjustment of class differences in Russia is frequently displayed in his earlier writings by the fervidness with which he yearns for the approach of the "hour of revolution." It was inevitable, therefore, that the formation of the first Workers' Soviet in 1905, with the opportunity it offered for cohesive effort by the proletariat should impel his return, at all hazards, to the mother country.

The first Soviet came into being as the result of the universal strikes that ensued after the massacre of Bloody Sunday in the early part of January, 1905. The attacks of the cossacks on Father Gapon's marchers, as they surged in demonstration through the streets of Petrograd towards the Winter Palace, to present their petition for a "constitution" to the Tsar, had evoked instantaneous reprisal in all industrial centers, in the mining districts, and among the railway employees. The strikes attained such enormous proportions that the workers, profiting by their experience in the similar venture of the summer of 1903, which had failed because of lack of coordinated direction, determined to provide adequate central supervision.

Accordingly a "Soviet," or council of workers' delegates, was formed, with representatives from the different workers' groups. The Soviet met in Petrograd under the presidency of Krustalev-Nosar, a prominent Bolshevik. It was an unwieldy body of several thousand members, amongst whom was Leon Trotski. Its inability to accomplish results because of the looseness of its organization was soon recognized and an executive committee was determined upon, to which Trotski was appointed. When later in the year Krustalev-Nosar was arrested by the police, Trotski was elected to the presidency in his stead.

Until the end of October, 1905, the country was plunged into economic chaos. Finally on October 17 the government capitulated and announced

that a constitution, granting freedom of speech, movement, and assembly, had been granted. Unfortunately on the very afternoon of the 17th the crowd, which had gathered at the Technology Institute clamoring for the amnesty of all political prisoners, was attacked by the police with *nagaika* (whips with lead-tipped lashes) and the mobs which had formed in demonstration in Gorokhovaya and at the Putilovsky iron works were fired upon by the cossacks. These proceedings were so contradictory to the manifesto of the Tsar, promulgating the constitution, that any salutary reaction was effectively nullified.

The Soviet of Workers, under Trotski's leadership, openly expressed its dissatisfaction, declaring the move to have been nothing more than a ruse to induce the workers to return to the factories and railways. Indeed a rigid censorship of speech and writing continued, and the billeting of patrols of soldiers in the gymnasiums and universities remained as before. Yet on October 21 the Soviet ordered the discontinuance of the strikes in a bulletin signed by Trotski and ending with the statement: "The proletariat knows what it wants and what it does not want. It wants neither police-ruffian Trepov nor liberal-broker Witte, neither a wolf's mouth nor a fox's tail. It will not have a *nagaika* wrapped up in a constitution."

A series of plunder and pogroms had followed the promulgation of the constitution. The massacres of the Jews during this period, however, cannot be attributed to any definite policy on the part of the Government. It was true that a large number of the leaders of the Workers' Soviet were Jews. Any means of weakening the influence of the Soviet was to the advantage of the Government. Yet the Government made vigorous efforts in the sensitive areas to suppress pogroms and issued stringent orders to public officials on the matter. The massacres, most numerous in the *Cherta Osedlosti* or Russian settlements, where Jews were permitted to reside permanently, resulted in all probability from a recrudescence of racial antagonism, sporadically vicious and fanned into fresh blaze by the economic disorders. It is probable that the masses in these *gubernias*, driven by suffering and hunger which the duration of the strike had made intense, turned on the Jewish population as a whole, although incited in the first instance by the desire to despoil the prosperous few.

In Petrograd, during the days of November, 1905, the Jewish population lived in constant terror. The Soviet, being appealed to for protection, instructed the workers in all shops and factories where iron and steel were utilized to produce their own weapons —daggers, pikes, steel knuckles, wire whips, anything that might be hammered from the metal and tempered with fire.

The Government retaliated by breaking up the workers' "militia" which had been organized, and by confiscating all weapons discovered. But it had been thoroughly frightened. Trotski realized this and, stimulated by the success of the Soviet's power, began to lead that body to the consideration of actual revolution that would culminate in the dictatorship of the proletariat.

The Soviet plan, devised under his tutelage, was premised upon the cooperation of all revolutionary groups

in the Labor Party. A passive attitude on the part of the soldiers and sailors was to be arranged for and an uprising *en masse* of the peasantry was to be incited by the promise of "the possession of the land." In a manifesto issued early in December, the Soviet asserted that, as the Government had lost the confidence of the people, there remained but one course—the overthrow of the existing régime. A new strike of the railway employees, supported by the postal and telegraph unions, was threatened and a boycott of the coming elections for the Duma was proclaimed.

The same day the Government suppressed the eight newspapers that had published the manifesto. An imperial ukase was issued prohibiting the strikes as a menace to the public welfare and announcing that membership in the postal and telegraph unions would be punishable by four years of imprisonment. For the first time the ministers appealed to the people, pointing out that these violent suggestions were being disseminated by extremists of anarchistic tendencies.

In the evening, at a meeting of the executive committee of the Soviet, which had been convened despite governmental injunction to declare the railway strike effective, the proceedings were interrupted by the arrival of the cossacks. The building was surrounded and the workers' committee, some three hundred all together—Trotski among them—was arrested and taken to three different prisons. The revolution had been crushed without a shot being fired.

The trial of the Soviet was set for July of the next year but was postponed and did not open until October. It continued until November when fifteen of the accused, including Leon Trotski, charged with having organized and equipped forces for the overthrow of the Government, were convicted and sentenced to exile for life in Siberia. Two were given shorter sentences, and the remainder were acquitted.

On January 3, 1907, Trotski with his companions started under guard for the place of exile, Obdorsk in Northern Siberia on the Arctic ocean. His escape at Beresov, before the final destination was reached, and his five hundred-mile trip across the tundras in mid-winter are vividly depicted in his book *My Journey*, or as it is otherwise entitled, *My Flight from Siberia*. The relays of reindeer teams, secured from the *yourtas* of the Ostiaks, finally brought him and his Sirayne driver, Nikiver, into the village of Rudniki.

"On the twenty-fifth of February," he writes, "I left in a coach on the narrow-gauge railway that connected with the Perm line. This was a little dangerous, because every suspicious-looking individual on this road was carefully observed, and then there was always the danger that a telegraphic communication might have come from Tobolosk, but when I reached the Perm line and found a comfortable coach that would take me to Petersburg I felt I was quite safe. . . . The compartment seemed stuffy and oppressive. I went out on the platform where the wind was blowing through the darkness of the night and involuntarily I gave vent to a loud shout of freedom and joy."

Eventually smuggled out of Russia by his friends, Trotski arrived in Vienna in the spring and began anew his work with the revolutionary

groups in Europe. His life was difficult, and his family which had accompanied him, often felt the pangs of real want. He now definitely aligned himself with the left Bolsheviks, becoming especially intimate with the following of Maxim Gorky who had established a propaganda center at Capri.

When the "General Party Conference," sometimes referred to as the "Lenin Conference" met in Prague in January, 1912, Trotski appears to have undergone another change of political feeling. This was the famous conference for which Lenin had canvassed Russia by means of emissaries so as to secure only Bolshevik delegates, and Leninite Bolsheviks at that. It resulted in the complete defeat of his opponents and established definitely the supremacy of Lenin as the party leader. The views of the Mensheviks on the one hand and those of the Vperedovtsys or left Bolsheviks on the other, were so divergent that Trotski, assuming once more his rôle of mediator, was unable to effect a reconciliation. The only hope for a united party lay in the acquiescence with the *coup* which Lenin had accomplished. Thereafter Trotski may be regarded, in so far as his general party allegiance is concerned, as being a Leninite.

In the winter of 1916 Trotski came to the United States where he made his living by his literary efforts, contributing articles to several radical publications that accepted his propaganda. He wrote usually in the Russian or Yiddish language, though he had mastered English in his early London days. Living for the greater time on the outskirts of Greenwich Village in New York City, save for one lengthy visit to Pittsburgh, he continued his literary occupations until the revolution of 1917 called him back to Russia.

Within no time after his return, he succeeded, by his fiery eloquence, in attaining a conspicuous position in the Petrograd Soviet. This body, organized along the lines of the 1905 Soviet, came into being immediately upon the assumption of power by the Provisional Government after the abdication of the Tsar. At first its representation was composite, reflecting the views of the various elements of the old Labor party. During its earlier days it was dominated by the more moderate Social-Revolutionaries. Yet, though the Soviet met in daily session in the Tavrichesky Palace, where the Duma of the Provisional Government also convened, it was nearly the end of April, 1917, before it consented to participate or cooperate with the Kerensky coalition.

Trotski was more in the foreground during this period than Lenin, not alone because of his remarkable gift of oratory but because Lenin, shortly after his arrival in Petrograd in the "sealed carriage" from Berlin, had been forced to leave again for Finland. Yet even at that distance Lenin was the directing head of the Bolsheviks and was patiently waiting for the propitious moment when the power might be seized from the Kerensky régime. In the meantime the preponderance of Bolshevik representation in the Soviet was steadily increasing and their propaganda was flooding the country. Shrill cries of "Down with the War," "Peace in the Land," "Victory to the Exploited," were penetrating the farthest hills and mountains.

In such labor Trotski was supreme. But he rendered his greatest service to the Bolshevik cause at the time that General Kornilov, the commander-in-chief of the Russian armies, rebelled against the Kerensky government because of its indecisiveness and weakness. Kerensky and his ministers, in a state of panic as the troops of Kornilov were nearing Petrograd, released from the fortress of Saints Peter and Paul all persons being held for trial on political charges, who declared their allegiance to the Provisional Government and signified their willingness to fight in its defense. Although the Government was playing into the hands of the Bolsheviks by this move it was driven to solicit their aid since the only salvation lay in persuading Kornilov's soldiers to throw down their arms, and the most effective means of accomplishing this end was the influence of the Petrograd Soviet.

It was the eloquence of the fanatic leaders like Trotski which inspired the workers with the blind enthusiasm to defend the capital, which drove the crowds from the public squares with a heterogeneous assortment of weapons to man the hastily sited trenches in the environs of Petrograd, and which finally impelled the workers to advance to the very ranks of the Korniloffites, beseeching the latter not to fight their brethren and destroy the ideals of the revolution.

By November of the same year Trotski had been elected president of the Petrograd Soviet. It was he, who, on the night of November 6—the eve of the revolution—announced to the Soviet amidst scenes of the wildest enthusiasm that whether an armed demonstration would be necessary or not on the morrow would depend on the degree of interference with the decisions of the All-Russian Soviet Congress. And on the morning of November 7, after the All-Russian Soviet Congress had gone into session, it was Trotski again, in the name of the Military Revolutionary Committee, who stood before it and, declaring that the Provisional Government no longer existed, offered the supreme authority to the congress on behalf of the people.

With the accession to power of the Bolsheviks, Trotski assumed the portfolio of the Commissar for War. In this capacity he was given opportunity to display the really remarkable ability for organization which he possessed. Under his skillful direction the Red Army, despite its lack of trained personnel and adequate equipment, developed into an efficient fighting machine that was able for several years to combat successfully the external foes of the Soviet Government.

Nor was Trotski merely the figurative head of the War Office. In the spring of 1918—with the Czecho-Slovaks appearing in the east and capturing Samara, Simbirsk, and Kazan, with armed detachments of White Guards threatening Vologda and Moscow, with Krasnov's forces in the south approaching Voronezh and Tsaritzin, with Doutov's Orenburg Cossacks reforming in the Urals and Kolchak descending upon Omsk, Cheliabinsk, and Ekaterinburg—Trotski carried out a compusory mobilization scheme that met each emergency completely. He took actual command in the field of the newly-drafted troops concentrated in the vicinity of Kazan. Under his personal leadership that city and, in turn, Simbirsk and Samara, were

recaptured. His general plans to meet the situation as a whole were so well calculated that with the coming of winter the menaces had been removed from all fronts.

Indeed it was plainly apparent in later years that of all the governmental departments in Moscow, the War Office was outstanding for efficiency and systematization. Trotski's aptitude in this essential quality — organization — had attained a high degree.

As a writer Trotski is frequently brilliant—so brilliant at times that the acceptance of his conclusions becomes dangerous without cold examination. For, like many dialecticians, his analytical speculations are often clothed in such glittering argument, though not strictly pertinent, that conviction descends before sound reasoning has penetrated his subterfuges. His logic is sometimes faulty. In the book *Terrorism and Communism*, probably his most famous work, this weakness is repeatedly evident in the construction of his syllogisms. Invariably, having set forth the contention he desires to establish, he fits his major and minor premises entirely illogically into the process of proof; yet he so disguises the whole with his wealth of practical obvious illustrations that the irrelevant relationship remains superficially hidden.

As an orator he was without peer in the Communist party. To stand in the Red Square and hear Trotski addressing twelve thousand soldiers before the walls of the Kremlin is an experience one will never forget. The long shadows begin to creep upon their ranks from the gilded towers of St. Basil—the Pineapple Cathedral—while the men listen with rapt attention to his vibrant tones. Clear and ringing, that voice, with no need for microphone or amplifier. Gradually he carries his listeners to the very heights of enthusiasm. Tremendous shouts break forth. Not any prearranged cheering under the impulse of the officers' suggestion, but a spontaneous outburst of the feelings he has stirred to such demonstrative pitch.

In debate Trotski was adroit and convincing. Usually having thoroughly mastered his subject, his retorts were quick and effective. As in his writings, however, he was prone to indulge too readily in bitter personal invective. Then again, on the platform there is no doubt that on more than one occasion, carried away by his own fanatic ardor, he gave vent to statements that his calmer judgment would have restrained him from uttering.

It was this uncertainty of the stand he might suddenly espouse during periods of critical party controversy that made such a menacing factor in party unity. Furthermore, since he headed for a long time a powerful bloc, his support or opposition of a measure demanded serious attention. In many of the more violent eruptions in the party, not a few of which were precipitated by himself, he assumed the position of a formidable minority leader. Invariably, then, his influence was such that his probable attitude in a party crisis was a source of constant apprehension to Lenin and his immediate henchmen.

The character of Trotski seems never to have entertained the idea of conciliatory concession. In consequence his disturbances of party equanimity, when they did occur, were fiercely contested affairs that threatened to dis-

rupt the organization as a whole. Of all these probably the most astounding was his cool proposition, made in the latter part of 1920, to remedy the collapse of the industrial life of the country by the conscription and militarization of labor.

In the attempt to reconstruct the economic life of the country, the Soviet Government had at first adopted a system of management of the industries under a "Factory Soviet." The latter was composed of members elected by the workers in each factory or mill. In-as-much as a certain degree of normal, individual management had still been retained, the functions of the Factory Soviets were vague in scope and eventually were reduced, in most instances, to the mere safeguarding of the interests of the workers. There was also in each plant a Trade Union Committee. Very soon confusion arose as to the precise limitations of these two bodies. The Factory Soviets frequently usurped the powers and duplicated the activities of the Trade Union Committees and even threatened to develop as independent organs. Meanwhile production stagnated.

To remedy the unfortunate situation the All-Russian Congress decided that "the most intimate co-operation was desirable between the Trade Unions and the Peoples' Commissariat of Labor (Department of Labor)," and that the Factory Soviets should be subordinate to the Trade Unions. At the same time the composition of the Factory Soviet was changed to consist of representatives from the Commissariat known as the Supreme Council of Peoples' Economy, from the Trade Unions and from the rank and file of the workers in each factory. This new body was designated as a *collegium* and its functions were the actual management and supervision of the factory's output. The scheme was introduced throughout the industries under the title of the "collegiate system."

The results were even more disastrous. Industrial disorganization everywhere followed the installation. With the removal of the incentives of promotion and pay the initiative of the workers was destroyed. Misappropriation and misuse of the already low supply of raw material and fuel were ascribed to the incompetency of the management. Then, too, there arose serious disagreements between the two governmental departments involved (the Commissariats of Supreme Peoples Economy and of Labor), which aggravated the alarming disintegration still further. It was at this juncture that Trotski launched a vigorous condemnation of the system:

"No *collegium*," he said, "formed out of persons who don't know the job, is capable of superseding one man who does know his job. A *collegium* of jurists cannot take the place of a signal man. A *collegium* of invalids cannot take the place of a doctor. The whole idea is wrong. The *collegium* itself cannot give knowledge to the ignorant. It can only serve to conceal the ignorance of the ignorant. If you appoint a person to a responsible post, then it soon becomes clear, not only to others, but also to himself, how much he knows and how much he does not know. But there is nothing worse than a *collegium* of ignoramuses, of workers ill-prepared to fill a purely practical post which demands special knowledge. The members of such a *collegium* are in a state of perpetually losing their

The various elements in the party, even that headed by the fiery Trotski,

ment was immediately followed by the temporary ejection of Trotski.

heads, of mutual dissatisfaction, and introduce indecision and chaos into the whole work by their very helplessness."

The remedy he proposed was to introduce into industry the same methods of conscription and militarization that had been carried out in the army during hostilities. It was only by these means, he maintained, that the diseased conditions of labor throughout the country could be cured. To those who might complain that his plan involved compulsion and that compulsory labor was unproductive, he answered: "What do you mean by compulsory labor? That is, to what other form of labor do you compare it? Evidently to free labor. What are we then to understand by free labor? The phrase 'free labor' was formulated by progressive bourgeoisie thought as opposed to unfree labor, i. e., the *corvée* labor of the artisan guilds. By free labor then is meant, in bourgeoisie language, that which can be bought freely on the open market." On the contrary, he insisted, his plan, in antithesis to the capitalistic idea, made labor subject to social regulations, based on an enormous scale, obligatory upon the whole people and consequently compulsory for every worker in the country.

The plan of Trotski's evoked violent political opposition, especially on the part of the Trade Unions. Lenin, sensing the split that was likely to occur in the party, was determining upon a means to end the discord. He decided upon compromise measures. To this end he summoned Tomsky, who represented a moderate Trade Union element in the center, Gregory Zinoviev, and others.

On September 9, 1920, before a full session of the Communist party, Trotski presented the draft of his project. He followed this by assailing the "bureaucracy" of the governmental departments and by criticizing the Government for permitting this "weed to take root." Bitter debate ensued, with indiscriminate attacks on the Government. At one stage the conference threatened to assume the nature of a personal attack upon Lenin. He withdrew from the debate, as had always been his custom under such circumstances, and Gregory Zinoviev took his place as leader of the compromise faction.

An agreement was eventually reached to review the entire trade union question. For this purpose a special commission was appointed, among whose members was Trotski. But he refused to serve on it. When some months later the commission's report was rendered, it actually reflected the views of Lenin. The plan of Trotski's was decisively defeated, yet prior to the rendition of the report, Trotski had succeeded in forming a bloc of eighteen prominent party figures whose support he had been able to gain at the cost of dispensing with such offensive words as "conscription" and "militarization," while retaining most of his fundamental principles. Hence, though defeated, he remained a power to be reckoned with.

This was only one of the many occasions on which Trotski, a veritable firebrand indeed, almost succeeded in starting a conflagration that might have consumed the party. And, after all, the Communist party is the Government. Its disintegration means the collapse of the communistic régime in Russia.

Notes from the Chief of Infantry

The various elements in the party, even that headed by the fiery Trotski, were successfully held in cohesion during his life by the skillful leadership of Lenin. As regards Trotski in particular, there undoubtedly existed on the part of Lenin an abiding respect and confidence, if not affection, despite their political differences. Lenin recognized his ability and could transform his erratic brilliancy into useful accomplishment. None of the other party leaders, however, were able to achieve such results. Furthermore, many of them, like Gregory Zinoviev and I. V. Stalin, had been long since turned into bitter personal as well as political enemies by the sarcastic arraignments of Trotski.

Consequently it was inevitable that, with the death of Lenin, opposition to Trotski would take active form. Not only was he regarded as a disturbing factor, whose outbursts, because of his superior grip of affairs, could hardly be controlled save by Lenin himself, but also, and this was the greatest fear, his influence and following were sufficient to cause exceeding anxiety lest he attempt to seize the leadership of the party. Therefore the first act of the trio, Stalin, Kamenev, and Zinoviev, who had momentarily assumed the balance of power in the party upon the death of Lenin, was to appoint Alexander Rykov, a life-long adherent of Lenin with a mild character and a plastic nature, to the position left vacant by the passing of the great leader —a position really that of prime minister without portfolio. This appointment was immediately followed by the temporary ejection of Trotski.

Trotski's sojourn in the Caucasus, "for his health," was short, however, for his prestige and popularity in the Red Army were too great. He was subsequently invited to return to his post. Sometime later he was removed from the Commissariat of War, which he had headed so efficiently, and Dzerzhinsky, giving up the Commissariat of Ways and Communications, took over Trotski's old offices. It was the beginning of the end.

With the power of Stalin growing steadily more secure, those who hindered or seemed likely to harass his more progressive schedule were one by one shorn of their former prominence. The suave Kamenev, the aggressive Zinoviev with his "die-hard" insistencies of earlier days, were among the first to be relegated into political obscurity. Trotski made another "journey" of some duration from the Red capital, and finally was actually sent into nothing more or less than exile.

Whatever the accidental or superficial causes of his departures in each of these instances, the basic reason was that his presence and criticism were a source of constant menace to the dictatorship of Stalin and to the newer policies he was striving to inaugurate.

So today we find Trotski, a wanderer, knocking at the gates of Berlin and begging for admittance. The future is a matter of conjecture as to whether he will ever again be permitted to pass beneath the arches of the Brandenburg Tor.

Notes from the Chief of Infantry

Commissioned Personnel, Office Chief of Infantry

Chief of Infantry

MAJ. GEN. STEPHEN O. FUQUA

Executive

COL. LORENZO D. GASSER

Section I—Personnel
COL. C. C. ALLEN
MAJ. E. F. RICE
MAJ. L. S. HOBBS

Section II—Intelligence
MAJ. T. B. CATRON
MAJ. S. J. CHAMBERLIN

Section III—Training and Inspection
LIEUT. COL. E. J. MORAN
MAJ. B. MAGRUDER
MAJ. C. H. BONESTEEL
CAPT. W. G. LAYMAN

Section IV—Arms and Equipment
LIEUT. COL. E. BUTCHER
MAJ. T. LAWRENCE
MAJ. J. D. PATCH
MAJ. H. TERRELL

Section V—Mobilization and Organization
COL. F. W. BUGBEE
CAPT. P. E. LEIBER

As the Journal goes to press we are grieved to learn of the death of Secretary of War James W. Good.

The Infantry and the Army have suffered a great loss.

God rest our Chief!

Policy for Selection of Students for the Command and General Staff School and the War College

THE Secretary of War has directed that Command and General Staff School student officers for the Regular Army for the 1930-32 class be selected from officers of field grade who will be less than fifty years old on September 1, 1930; from captains who on October 1, 1929, were among the first fifteen hundred on the promotion list and who on September, 1930, will be less than fifty years old; and from captains below the first fifteen hundred on the promotion list on October 1, 1929, who are particularly qualified for higher training, and who in September, 1930, will be less than forty-five years old, provided that the number of officers from this latter category will not ex-

ceed ten per cent of the total authorized for any branch.

All officers recommended for the detail must possess those qualifications which make them suitable for higher command and general staff training.

A departure from past policies in the selection of students for this school is that graduates of the 1929-30 classes of the advanced courses of special service schools will not be recommended for detail as students of the 1930-32 class at the Command and General Staff School. Hereafter graduates of advanced courses will be required to serve at least two years with troops or on other duty before being detailed as students at the Command and General Staff School.

The total number of students for the 1930-32 class is one hundred and thirty-two. One hundred and twelve of this number have been allotted to the arms, ten to the services, and ten to the Secretary of War. The apportionment of students is:

Infantry	46	
Cavalry	14	
Field Artillery	19	
Coast Artillery	12	
Engineers	7	
Air Corps	10	
Signal Corps	4	112
Adjutant General's Department	1	
Quartermaster Corps	3	
Judge Advocate General's Department	1	
Finance Department	1	
Medical Department	2	
Ordnance Department	1	
Chemical Warfare Service	1	10
Secretary of War	10	10
		132

The class which will enter the Army War College in September, 1930, will total seventy-five officers of the Regular Army. Fifty-five will be selected from the arms, ten from the services, and ten by the Secretary of War.

The selection will be limited to officers of field grade, who will be less than fifty-two years of age on September 1, 1930, who are not graduates of the Army War College, and whom their chiefs of arms and services consider as possessing the qualifications that justify their training for higher command and general staff duty.

At least fifty per cent of the quota from each arm or service will consist of officers who, upon graduation from the War College, will be available for duty on the War Department General Staff.

The apportionment of students is:

Infantry	20	
Cavalry	8	
Field Artillery	9	
Coast Artillery	9	
Air Corps	4	
Engineers	4	
Signal Corps	1	55
Adjutant General's Department	1	
Quartermaster Corps	2	
Judge Advocate General's Department	1	
Finance Department	1	
Medical Department	2	
Ordnance Department	2	
Chemical Warfare Service	1	10
Secretary of War	10	10
		75

Cotton Cloth

THE Chief of Infantry has concurred in a recommendation of the Quartermaster General to the War Department that a khaki-colored cloth (lighter in color than the present olive drab) be prescribed as a standard shade for cotton uniforms. The Quartermaster General submitted with his recommendation a sample of cotton cloth dyed with the new color. It was specifically recommended that this particular combination be adopted. Although it seems probable that a shade other than olive drab will be adopted as standard, definite decision as to the particular shade to be selected has not been made. Prior to a definite decision, it is probable that an extended test will be made of the sample cloth, which the Quartermaster General says is most resistant to fading.

During the past year, at the request of the Quartermaster General, some of the leading chemists of the country have been actively engaged in the development of an olive drab dye that would be permanent in the manufacture of cotton cloth for enlisted men's uniforms. It was found that the olive drab was obtained from a mixture of yellow and brown pigments, each of the latter being fugitive. No chemical has been found that would mix these two pigments into a fast color. It was found that as the percentage of the two pigments present became smaller, greater fastness of color was obtained, consequently, the lighter the color of olive drab, the faster the color. It was therefore finally concluded that the desired shade of olive drab color could not be sufficiently fast to withstand the scrubbing, washing, and light exposure tests. The brown and yellow colors fade and leave the green components predominant. From these experiments a khaki-colored cloth was believed to be the most resistant to fading of all those tested. The dye was considered permanent, in fact more permanent than the English Hongkong khaki.

The khaki-colored cloth mentioned above was the sample submitted to the War Department and recommended for adoption. At the best, it will be sometime before the use of a new shade can be made universal, since a large number of uniforms of the present olive drab material are still on hand. These uniforms would necessarily have to be used up. It is understood that the khaki-colored cloth is cheaper of manufacture than the old olive drab material.

Ⓘ

Antiaircraft Practice

CALIBER .22 gallery practice barrels, Model 1903, modified for use in the Browning Machine Gun, Model 1917, and cartridge holders for caliber .22 short ammunition have recently been tested by the Infantry Board to determine their utility for use in machine gun training, particularly for antiaircraft practice. This expedient was found useful and the best so far tested. A definite decision as to adopting this method has not been made. Further study will ensue before recommendations are submitted.

It is impracticable to train in antiaircraft practice with machine guns at many of our infantry stations, because the reservations are not large enough to permit the use of service ammunition. Various expedients have been and are under study to determine some method of using machine guns on the average post. All are based on the idea of a reduced charge, and consequently a reduced danger area. One plan was to mount the caliber .30 pistol (Pedersen device for caliber .30 rifle) by brackets to the side of the machine gun. Another was to mount, alongside of the water jacket of the machine gun, a caliber .22 semi-automatic rifle of commercial design. Neither of these devices when in use simulates the actual working of the machine gun, since the firing is done independently of the machine gun mechanism.

The third method, namely, using a modified caliber .22 gallery practice rifle barrel in the machine gun and cartridge holders for caliber .22 short ammunition was comparatively tested with the caliber .22 semi-automatic rifle attached beside the water jacket. The former was reported as being the more satisfactory. The cartridge holders are loaded into the machine gun belt. The gun is operated by an extra man, who pulls and releases the bolt. A rate of fire of about sixty shots per minute is the maximum that can be obtained. Any lesser rate of fire is obtainable by working the bolt handle more slowly. A rather large breakage occurred in the cartridge holders. The main advantage of this method over the semi-automatic rifle attached was the degree of realism in the operation of the machine gun. The results secured with this device convinced the Infantry Board that it was a material aid to the machine gun company in orthodox machine gun practice as well as in antiaircraft training.

The expense involved in modifying the barrel and in the manufacture of holders is so considerable that further study is being made to determine if some other suitable and less expensive method exists. It is thought possible that the old caliber .30 gallery practice ammunition might be used in the existing caliber .30 barrels. If this ammunition, which is surplus, could be used, the expense of extra barrels and cartridge holders would be avoided. It is probable that prior to a decision in this study, the caliber .30 gallery ammunition will be tested for this purpose.

Ⓘ

Caliber .50 Machine Guns for Infantry School

THE War Department has recently given authority for the issue of four caliber .50 machine guns with the necessary accessories and ammunition to the academic department of the Infantry School. These weapons will be used in the instruction of the classes.

A decision as to the tasks to be assigned to the caliber .50 guns in infantry combat has been delayed pending the development of a suitable mount. There seem to be several possibilities for the utility of this weapon, among them antitank and antiaircraft. The last tables of organization pre-

scribed three platoons in the war strength machine gun company, one of which is authorized for conversion into a caliber .50 platoon as soon as a satisfactory gun, mount, and equipment are available. A platoon of caliber .50 guns was included as an organic part of the battalion in the recent experiments at the Infantry School with the war strength battalion organization project. These guns were carried on improvised mounts on motor vehicles. They were used for fire at both aerial and ground targets. These indications that the caliber .50 gun will eventually be included in infantry armament make it desirable that the officers who attend the Infantry School be acquainted with its use, powers, and limitations.

Ⓘ

Infantry School Detachment Takes Over Lithographic Plant

THE Infantry School detachment has taken over the operation of the lithographic reproduction plant at Fort Benning from a detachment, Company A, 7th Engineers. The plant has been transferred to the Infantry School.

In 1923, at the request of the Chief of Infantry, the Engineer Corps established at the Infantry School a lithographic plant, using field equipment which had been purchased during the World War. This equipment has been used for map reproduction and other work for the academic department of the Infantry School. The work accomplished by the plant has outgrown the force which Company A, 7th Engineers, was able to provide for its operation. The importance of the work is such that higher ratings are indicated for the skilled operators. The Engineer company did not provide such ratings. For these reasons decision was made to turn the plant over to the Infantry School detachment.

To provide for the operation of this new activity, an additional authorization of certain grades and ratings has been made to the detachment. These additions are: one technical sergeant, two sergeants, one corporal, and three privates first class, including a second, a third, and a fifth-class specialist's rating.

Ⓘ

Tank Instruction at the Infantry School

AS a reflection of the increasing prospective use of the tank as an organic part of infantry units, besides as a supporting force, the amount of practical instruction in the use of the tank and its weapons has been increased for the present classes at the Infantry School. The additional instruction consists of tank driving and tank marksmanship and is included in the Infantry School courses to teach the students in a small but effective way the powers and limitations of the tank.

The programs of instruction of the Infantry School have for some time included a certain amount of information and instruction on tank history, organization, and equipment, the powers and limitations of tanks, tank tactics and technique, combat principles of tank actions, and tank logistics. The program heretofore, however, has not provided an opportunity for all the students to drive the tank and to fire its weapons. Members of the advanced class, during the month of October, were each given one hour of actual instruction in driving and another hour in firing the 37-mm. gun and the machine gun. Similar instruction will be given to the members of the company officers' class during the month of March, 1930. The marksmanship instruction, in general, will include firing about one hundred rounds of caliber .30 ammunition and five rounds of 37-mm. ammunition.

A Prophecy of Chemical Warfare

From the Notebook of "General Experience"

AS far back as 1850, a certain Dr. Lardner predicted the use of artillery projectiles filled with chemicals which would produce clouds of "arsenic and prussic acid gases." He pointed out the great volume of gas which could be secured from chemicals in a solid or liquid state.

Dr. Lardner designated the chemical compounds suitable for loading into artillery shell by the general name of "kakodyles."

Reviews and Discussion

My Preference Card

SOMETIME around the first of each year we tear open an official envelope and find a "dark-brown" card marked "Statement of Preferences" for 19—, with a lot of space for the Adjutant General's office but not much for us—or so we think.

"Ho, hum, here's that darned thing again! It's not worth a whoop, but if I don't fill it out after a fashion I'll get skinned, so here goes."

Our thoughts are usually that we are satisfied where we are and don't want to be moved, or that no attention will be paid to it anyway, so we fill out the card in a very perfunctory fashion, put it in the envelope, mail it, heave a sigh of relief, and forget it.

But let's reconsider for a minute. How many of us would pass up a chance to sit down and have a chat in the assignment section of our arm and tell whoever happens to be in charge there what we would like to have, after a careful thought about the next move, however improbable it might seem at the time? The Chief of Infantry welcomes and encourages such visits. But with many miles separating two points (your own station and Washington) that is often impossible. The next best thing is the preference card. Under present policies no move is made without consulting these cards, and it is astonishing what a number are filled out in such a manner that it would take even more than Solomon in all his wisdom to make a reasonable interpretation.

Let's look at the card for a minute.

It says—*Last name—First name—Middle initial—Rank—Arm.*

"Oh well, we always fill that out right."—Echo answer, "Right."

It further says—*Indicate details desired and order of preference by placing appropriate numbers in spaces below.*

"But I don't want any of them," or "I won't get what I want."

Echo here says that if you don't want any, say so under "Remarks," and if you wonder whether you'll get something, at least fill the column out properly and give Kismet a chance.

It says further, *Single or Married.* That's simple.

Next—*Number and ages of minor children.*

How often this space contains anything from one (1) to twenty (20), and it is a guess as to whether that is the number or the age or both. When an officer is forty or less it is to be supposed the latter figure means age, but who is to tell?

Next—*Number of other dependents. State relationship.*

Be sure they are dependent.

Next—*Order of Preference for Foreign Service.*

Most of us say "I just want China (or the Philippine Islands, or Hawaii, or Panama, or Porto Rico, or Alaska, or whatever our liking is) and nothing else."

True. But vacancies do not always exist in those places at the time you have to be moved. So there should be a second and a third and a fourth choice, with any special circumstances again noted under remarks.

Next—*Is change of stations desired.*

Whether its "yes" or "no" you may have to be moved, and then if you indicate your desires there is something on which to work.

The remaining spaces speak for themselves.

The individuals in the office of the Chief of Infantry who work on recommendations for moves of Infantry officers are just average human beings, not mind-readers. When they consult a preference card and it is practically blank or very ambiguous it's hard for them to make a correct interpretation.

Let's give the little card a chance and thus give ourselves more of a chance.

Ⓘ

"You, Doughboys!"

Col. Gustavus M. Blech, Medical Reserve Corps

"GENERAL," I asked my division commander in 1917 after I had seen him riding a fractious horse, "I think you must have been a cavalry officer."

There was just the least evidence of a smile, then came this answer: "Oh, no, I belong to the 'Queen of Battles,' the Infantry."

And this reply, given half in jest and half in earnest, caused me to think.

Years ago, indeed many years ago, I had an opportunity to see a foreign army at close range. I noticed then that the cavalry, the artillery, and the engineers assumed a patronizing air when they came in contact with infantrymen. As for representatives of the general staff, one had to don immaculate white kid gloves before one could even address them.

Then came a maneuver. It happened that I trailed behind the first regiment of a brigade and wondered how the foot-weary, parched marchers could cover kilometer after kilometer under a hot sun. But the poor fellows did not even murmur. In the midst of this torture a squadron of dragoons caught up with and passed the winding column. Envious looks from the men in the dust, laden down with a heavy rifle and pack; and superior glances from the equestrians, burdened only with sabers.

Another kilometer or two or three, endless to the footmen, a mere constitutional to the cavaliers, then a few trumpet signals, the regiments swung across a field, unslung packs, stacked rifles, and the infantrymen laid down, resting and smiling.

The cavalry swung to a field across the road and dismounted. Then the

foot soldiers heard sharp commands to unsaddle, to groom the horses, and to take them to water. "Stable boys!"[1] the infantrymen jeered. But a trumpet call broke in and called them to their food—while the cavalrymen did not get to eat for another half hour, until after they had fed their horses.

I was a youngster then, and the little episode would have remained forgotten if the general's remark had not brought back memories of the past.

Then came the World War. Trying to do our jobs right left us little time for reflection. But the Armistice and the disbanding process finally gave us leisure, and those of us who learned to love the Army indulged in a little thinking about the men who actually did the business in the trenches, in no-man's land, and in the occupied terrain.

Cavalry was conspicuous by its absence, artillerymen grumbled just as much as the men who had two feet in three feet of water, and the engineers were pioneer infantry.

"Hm," said a certain general staff officer of one of our allies, "The infantry is passé. War is now *matériel*. The doughboys are needed only to occupy the places that the artillery gains for us. Wars will be fought by cannons, by tanks, by gases, by flames—in short, by machines."

But the Infantry still has to win our wars. The doughboy is no longer the male Cinderella for the "superior" arms. In democratic America some men who happen to know something about war have even given to the troops that are not infantry the appellation "auxiliary arms"—a distinction that the Infantry richly merits.

The thought struck me that some of us forget that steel has no soul, no brains, no initiative, no eyes, no judgment; that the tank gets stuck, that the explosive shell fails to burst, or bursts upward; that the airplane needs favorable flying conditions; that gas becomes innocuous when it meets a gas mask.

"Ah," say you, "but there is a guiding mind behind these inanimate forces." True, but to a certain extent only, for the mind can only set them in motion; it can not overcome their limitations.

The infantryman has only limited brawn, but he has the capacity to direct that force where it will do the most good.

Watch a moment. Here you see a line of doughboys advance. Another line awaits it. The rifles have used up their ammunition, the automatics are empty, the machine guns are silent, the last grenade has burst. And still the line advances. Rifles are reversed and stocks are swung with fury, the bayonet performs one chest operation after another; here, a man seems to have forgotten that he is a soldier and swings an uppercut against his opponent's chin, to his right a buddy uses his intrenching tool as if it were a meat cleaver, to his left another buddy measures the depth of his opponent's body with his trench knife.

This is just a little thought—we can mechanize modern warfare to the n-th degree, but it will be minds and not machines that will decide the issue.

[1] "Roll over, Doughboy," in our own vernacular.

Processing

LIEUT. B. M. MCFADYEN, Infantry

TIME: During a future war.

PLACE: A regimental headquarters.

CAST: The officers of a Reserve regiment which has just been mobilized.

* * *

All officers are assembled in regimental headquarters for a conference. They look serious and important. The Colonel holds a paper in his hand.

COLONEL: "Gentlemen, I am going to read you a telegram." (He reads.)

"Your enlisted personnel will arrive within two days stop you have approximately ninety days for the training of these men stop"

EXECUTIVE: "That sounds as though we had to get a move on."

S-3: "I'll get busy with the Training Regulations so that we won't lose any time."

S-2: "I can help S-1 until I get enough personnel to start functioning." (He glances around after "functioning" to see what they think of that.)

S-4: "The first thing we had better do is feed 'em and sleep 'em."

Co. COMDRS.: "Right."

COLONEL: "Have any of you ever been to one of those C. M. T. camps and seen that 'process' stunt?"

ALL: (A breathless silence, with far away looks.)

S-2: (Reluctantly) "I saw it one time, several years ago, sir."

COLONEL: "Fine. (He turns to the Executive) "S-2 will take charge of the processing, with S-4 to work with him. Give them any personnel they want."

S-2: "Colonel, I shall have to outline that processing scheme from memory, so it may not be copper plate, but it will work."

COLONEL: "Fine. That's all, gentlemen."

Curtain

ACT II

TIME: Three days later.

PLACE: The same.

CAST: The same.

COLONEL: "Gentlemen, that processing was fine. You are to be congratulated on your work."

ALL: (Silence, with pleased looks and expressions of "I did it.")

COLONEL: "Now, S-3, we want to hear your program of instruction to carry out the training outlined in that telegram."

(A silence.)

COLONEL: "Where is S-3?"

S-2: "Colonel, I saw him this morning with his arms full of papers and Training Regulations. He was muttering to himself."

(A dramatic silence, broken by the entrance of S-3, who looks slightly pop-eyed, or, it may be that he is dazed.)

COLONEL: "Fine. Here he is. S-3, we want to hear your program of instruction. A brief outline will do, just enough to show us how it works."

S-3: "Well, Colonel, it's like this: I figured out that we couldn't teach these men everything in ninety days, so I decided to go through the regulations and pick out the essentials which they need for immediate combat training."

COLONEL: "Fine."

Co. COMDRS.: "Fine. We haven't time to cover everything. We may have to leave here in sixty days."

S-3: "That's what I thought, too. I decided to arrange these essentials in order of importance, so if we do not finish, the men can at least have a chance."

UNIDENTIFIED VOICE: "Let's cut out all of that 'front into line' and 'on right into line.' We don't need it in battle."

ANOTHER VOICE: "And that oblique marching and halting from it. Let's stick to the movements necessary to maneuver."

COLONEL: "Fine." (He turns to S-3) "You go through the regulations and cut out all the 'possibilities.' We are going to have a hard time teaching 'probabilities.' Leave only the essentials; just those things that directly bear on turning out a fighting force. Then if we don't have ninety days for training, the men will at least know enough to shoot. And if it turns out that we have more than ninety days, why, we can elaborate on the essentials."

(It was a long speech for the Colonel. He usually said "Fine," for he had a way of making everything fine.)

EXECUTIVE: "But, Colonel, we must not cut out any close order. It's needed for discipline."

COLONEL: (He makes a noise in his throat, and the room is strangely silent.) "There is discipline in a fifteen-minute talk under a shady tree, if you are on the job. We'll get our discipline by doing the few things we learn RIGHT." (Emphasizes the last word with his fist.)

S-3: "Fine."

Co. COMDRS.: (A little uncertainly) "Fine."

S-2: (Who has done his part of the job and is "sitting on the world.") "Fine. Let's process 'em through the training period."

Curtain

ACT III

TIME: That night.

PLACE: The Colonel's office.

CAST: Supplemented by an orderly.

COLONEL: "Orderly."

(The recruit orderly marches in, clicks his heels, salutes, and stands at attention. He has been to a military school.)

COLONEL: (To himself) "That's the stuff. Look at the way we've trained him in one day."

(To orderly) "Present my compliments to S-3 and request him to come to my office."

(The orderly salutes, faces about, and marches out. The Colonel's eyes glow—whatever that is.)

(S-3 appears in the doorway. His arms are full of books. One drops to the floor, but he makes no attempt to recover it. He looks a little more pop-eyed.)

COLONEL: "S-3, have you got it ready?"

S-3: (He hesitates) "Colonel, I've gotten all of the regulations together and have started to list the essentials. I haven't had time to arrange the priority of subjects."

COLONEL: (Mechanically) "Fine." (He ponders) "When will you be through?"

S-3: (A look of despair supplants his pop-eyes. He drops the books and slumps to the floor. He mumbles to himself.) "Before the war, when they had time, why didn't somebody think about processing this training?"

Forty, But Neither Fair Nor Fat

A description of a simple and common-sense way to cut down and keep down your weight, by a man who did it

THESE words are written for those among us who have received a letter after the annual physical examinations advising them that they are overweight, and what to do about it.

All of my life, except for the past year, I have been fighting the bugaboo of overweight. Now I have the thing whipped and believe that I have arrived at a satisfactory method of keeping it that way. Those of you who have looked regretfully at your old "blues" and with a sigh repacked them in moth balls, those of you who have squirmed into expensive boots and only to find that you can no longer stand the torture, and those of you who really wish to rectify these conditions, may glean something from my wanderings in the realms of dietetics.

On January 7, 1928, my weight was *two hundred and four* pounds. On January 2, 1929, the scales registered *one hundred and fifty-four* pounds. A simple calculation in arithmetic shows a reduction of just fifty pounds. I am five feet eleven inches in height, and all weight tables show that I am now about ten pounds underweight. I find, however, that my best weight is between one hundred and fifty-five and one hundred and sixty pounds, and there I keep it. Now, how to do it.

As a matter of record I will give my weight as recorded at the annual physical examinations for the past ten years.

Year	*Weight*
1919	180
1920	185
1921	195—A yelp from the doctor.
1922	185
1923	180—In the tropics, reduction unavoidable.
1924	170—Dengue fever.
1925	187—Back in the States.
1926	190—Worried.
1927	196—Shall have to do something about it.
1928	204—Shall do something.
1929	154—Did it.

The above table shows a great change from 1928 to 1929. To be exact, this change was brought about by June of 1928. So I have been enjoying thin health for more than a year now. Indigestion is something with which I am no longer acquainted. Appetite? Normal. The desire for large gobs of rich food has departed from me.

To get down to the details of how this was accomplished. It is first a question of desire, then of diet. The desire part comes in as the more important element. Do you desire to get back to your old weight more than you want to eat? This desire must be uppermost in your mind when you are confronted by a rich and hearty meal —and not just after you have licked it all up.

This old bunk about being naturally fat is out. Overweight is a matter of intake and output. If the fuel intake is more than the energy output, then you put on weight. If the reverse is true you shrink. If they balance you stay put. Nearly everyone eats about twice as much as he needs to keep body and soul together. The main trick of going on a diet is to eat properly. Exercise will not take it off unless the fuel is also reduced.

One thing that I want to emphasize here is chewing. Chew your food, then chew it again, and then some more. If you chew, chew, chew, you will find

that it does two things. First, the food gets in such shape that the digestive juices can handle it without those large pains under your wish bone; and second, that large piece of beef steak that you have been in the habit of polishing off will be too big a chore for you. About half-way through you will be tired and your appetite will be satisfied.

Another important item of your reduction equipment must be a scale, preferably a bath room outfit on which you can weigh yourself in your birthday suit each morning. When you arrive at the desired weight it is an easy matter to keep there. If you indulge in a banquet and put on a couple of pounds, get real worried about it and go slowly for a couple of days or until the scale registers what it ought to.

As to rules and regulations, I hate a list of "dont's" so will make this a list of "do's."

Eat only at meal time, and but three or perhaps two meals a day. You will find this rather hard at first, and passing up the ice box before you go to bed will be real bothersome, but it can be done. You will sleep better and feel better when you arise.

Your breakfast can be fruit, orange juice, or something of the kind, but not a lot of stewed fruit heavy with sugar syrup. Two pieces of thin toast. No butter. Black coffee *without cream or sugar*. How do you feel now? Hungry? You will find that coffee taken straight is an entirely new drink, and you will like it better. You will want good coffee, though.

Now for luncheon. You will assume the attitude that you are one of those strong silent men who need but very little lunch, in fact that you only occasionally partake of this unimportant meal. And when you do have it, here is a menu. A bowl of soup; nice thin soup, say a consomme, with a few vegetables looking lonesome in it, not that sticky pasty kind that is like gravy. One hard roll. Tea, straight, of course. A piece of pie—just one of reasonable size. You may substitute for the soup and pie a nice salad, if you wish, or for the tea and pie a glass of milk.

Next we come to dinner. You are hungry, you bet you are. But do not let this shake your resolution. A cocktail before dinner? Does your appetite need stimulating? Do you wish to take the fine edge off the firmness of your resolution? Use your own judgment. A nice piece of steak, two vegetables (no potatoes), a good salad with French dressing, dessert and coffee. The dessert can be most anything, but in reasonable amount. *No bread and butter.*

Stick to this for a week and you will be astonished to learn that you have lost four pounds.

Now you have kept up the good work for six months. You have arrived at the desired poundage, which leaves you no excess baggage to speak of. The "blues" fit you once more, the boots feel just right. That contemplated "V" in the back of your breeches will not now be necessary. You also find that you can take a few liberties with your diet and not have it register on the scale the next morning.

But the best part of it is that you will not want to stray far from your diet. You have learned to chew. Your bay window has shrunk away and you have not the room to stow away the vast quantities of commissaries that you formerly had. Your wife need never complain about how you used to dance for you will find that you can step along with the best of them.

The Infantry
REGULAR — NATIONAL GUARD — RESERVES

1st Division Command and Communications Exercises

LIEUT. ROBERT B. HUTCHINS, Infantry

BEFORE the World War field maneuvers were as much a part of troop training as range practice is today. Since the war they seem to have passed with it. Except for annual tactical inspections, which, after all, cannot be termed maneuvers, troops have been year in and year out without this training that combines the component organizations of a command into a fighting team.

Year after year higher commanders, realizing this lack in the training, have sought to correct it, but with little success. In the 1st Division nothing was accomplished until 1927, when Brig. Gen. Hugh A. Drum worked out a plan for meeting the requirements of the War Department as to finances and and at the same time assembling the commanders, staffs, intelligence personnel, and headquarters and communications units of all organizations in the division and giving them field training. This was the beginning of what are now known as command and communication exercises (CCX).

In 1927 these exercises were very successful. Lack of funds precluded holding them in 1928. But early in the fiscal year 1929 General Drum again obtained authority for the second of these CCX for the division at Camp Dix and scheduled it for the period 16 to 18, June, 1929.

The 1927 exercises had brought to light many needs, of which the most important was for a movable command post. A board of officers made a study of the transportation requirements of division headquarters for the exercises and the practicability of altering the bodies of trucks for a movable command post.

For the forward echelon the board recommended modification of G. M. C. trucks and assignment as follows: one to the commanding general and the chief of staff; one to G-2 and G-3; one to G-1 and G-4.

On each side of the modified truck a table (marked A) is attached with

Division Command Post Truck Ready for Work

hinges. When in use, the tables are supported by chains and hinged props, and when trucks are in motion are secured at each end by a bolt and wing nut. The small box (marked B), attached by means of a small bolt and nut, is partitioned for a EE5 telephone and a gasoline lamp. Maps are carried in the wooden cases (one on each side) (marked C), fastened permanently at top and bottom to the truck. A canvas roof for the command post (marked D) is attached to the truck, and with detachable side curtains furnishes excellent shelter in all kinds of weather. When the truck is moving, the roof is rolled up and the curtains are placed in a built-in box on the under side of the truck top in rear of the driver's seat. Benches for the tables are carried in the trucks and are used by the men when traveling. The trucks are further equipped as follows:

CP Truck (CG & C of S)

Personnel:

1 Div. Comdr.
1 C. of S.
1 W.O., steno.
1 sgt., steno.
1 chauffeur

Equipment:

2 field desks
2 folding chairs
1 lantern
2 map boards
2 gasoline lamps
2 telephones EE-4
2 telephones EE-5
1 wooden sledge
18 tent pegs
2 typewriters
2 equip. A, enl. men

CP Truck (G-2 & G-3)

Personnel:

G-2 & G-3
Asst. G-2 & G-3
1 W.O.
12 enl. men
1 chauffeur

Equipment:

2 field desks
2 folding chairs
1 lantern
2 map boards
2 gasoline lamps
2 telephones EE-4
2 telephones EE-5
1 wooden sledge
18 tent pegs
3 typewriters
1 mimeograph set
1 equip. draughtsman
13 equip. A, enl. men

CP Truck (G-1 & G-4)

Personnel:

G-1 & G-4
Asst. G-1 & G-4
1 W.O.
1 chauffeur
1 sgt. (clerk)

Equipment:

2 field desks
2 folding chairs
1 lantern
2 map boards
2 gasoline lamps
2 telephones EE-4
2 telephones EE-5
1 wooden sledge
18 tent pegs
2 typewriters
1 picket line
2 equip. A, enl. men

The division commander approved truck as modified and ordered organization headquarters to include brigades equipped with one. As a mobile command post this truck possesses many advantages over anything else yet evolved. One feature is the ease with which it can be prepared for a move forward; under the very best

Division Command Post Truck in Position and Personnel at Work

Division Command Post Trucks on the Road

conditions this was accomplished in seven minutes, and at other times in not more than fifteen minutes. Another feature is its suitability for all kinds of weather; equipped as it is with detachable side curtains, it protects against heat, rain, and wind, and at night gasoline lamps can be burned without danger of observation from the air.

In preparation for the exercises, schools were commenced early in the year throughout the division to familiarize officers with command and staff duties. Communication units were organized and trained. The division staff was given a three-months' course in Command Staff and Logistics, Field Service Regulations, Tactical Principles and Decisions, Tactics and Technique of Artillery, Combat Orders (1925), Signal Communication for All Arms (TR 160-5), Tactics and Technique of the Separate Branches, Tables of Organization Nos. 1-P & W and 2-P & W, Maps and Problems in 1927 CCX, Field Service Staff Manual (1925), Combat Intelligence Regulations (TR 210-5), Employment of Air Service.

At the same time the staff prepared the two problems for the CCX.

In brief, the general scheme for the preliminary training of units during the winter and for conducting the problem at Camp Dix was first to train the two teams, the command team and the communication team, separately, and then to bring them together as a combined team.

Assembled at Camp Dix as though there were a war, at H hour on D Day, June 16, all the headquarters within the division from division headquarters down through the battalion headquarters (except for one battalion in each artillery regiment), with their staffs and communication equipment totalling one hundred and fifteen officers and seven hundred and fifty enlisted men, commenced operations under field conditions at normal distances. For two entire weeks, through all phases of open warfare from assembling in assembly areas to the final stages of a rout pursuit, they operated in sunshine and rain, darkness and light. The situations were carried forward step by step by prepared messages sent out under the direction of a division staff officer acting as director. Command posts changed locations as normally they would, orders were issued by the different staffs when required, messages were sent by all means of communications, and actual conditions were presented in every way except by means of the shells themselves.

The two tactical problems consisted of these twelve exercises:

a. Division detrains and camps; actual reconnaissance of the ground by all commanders; the command as to war strength and fully equipped.

b. Division on a march, culminating in a halt by the division, establishment of outposts, and reconnaissance for defense.

c. Occupation of a defensive position.
d. Defense.
e. Counterattack.
f. Concentration; supply of shortages in officers, men, animals, transportation, and equipment.
g. Preparation for night development and march, concealed assembly positions.
h. Night development, march to assembly positions, and measures for attack.
i. Attack against an outpost position.
j. Attack of battle position.
k. Attack of battle position.
l. Part 1: Attack of covering force and pursuit;
Part 2: Attack of rear guard and continuation of pursuit.

Each exercise required a day for solution and sometimes a day and a night.

It is astonishing how realistic and entertaining such a maneuver can be made. Enthusiasm ran high among both the officers and men, and there was a competition between organizations for perfection in the installation of their communication systems. As a result the manner in which the maneuver was played was most creditable to all concerned. Of especial note is the speed at which messages were delivered. This message: "Was any message sent by pigeon from your CP this morning?" to a front-line battalion, was filed at the division message center at 11:50 a. m., received at brigade headquarters by buzzerphone at 11:55 a. m., at regimental headquarters by mounted orderly at 12:00 noon, and at battalion headquarters by telephone at 12:04 p. m. The reply was received back at division headquarters by telephone at 12:08 p. m. Total time, 18 minutes. Then, too, the business-like manner and quiet way of the movement forward of the entire division at night were notable. With no loud swearing or other superfluous noises, command posts were moved forward and set up, wire was laid and communication established within two hours of the beginning, for an approximate change in positions of six miles—a very remarkable performance for green troops.

There is no doubt as to the tremendous value of this training. The division benefited in any number of ways, but principally in how to operate as a team. The staffs learned to operate with one another. And when the staffs can cooperate and work efficiently together, to quote General Drum, "so will the entire division."

(I)

Regular Infantry

IN order that organizations of the 3d Brigade might obtain practical experience in firing at aerial targets, all machine gun companies, and a section of riflemen from each regiment, engaged in firing at towed targets at Camp Stanley, Texas, during the week of September 30, 1929. In this practice regimental commanders were given unlimited leeway in testing their ideas about the mounting of guns, rate of fire, adjustment of fire, formations, and similar matters. This firing demonstrated that rifles and machine guns in the hands of hastily trained troops are effective against low flying hostile aircraft that threaten an infantry force. However, it was shown

that to insure the best results in the absence of a perfected antiaircraft sight, an allowance of not less than twenty per cent tracer ammunition of the improved type is necessary for such training. With the object of improving this phase of training, an antiaircraft officer is being designated within each regiment, who is to give particular study to the development of suitable training expedients and methods.

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As a culmination of training during the 1929 season of range firing, a battalion combat exercise was held in each regiment of the 3d Brigade (9th and 23d Infantry) at Leon Springs, Texas. The force in each exercise was a peace strength infantry battalion re-enforced by the howitzer platoon.

For the 9th Infantry the exercise illustrated the action of a battalion as an advanced guard and its subsequent actions during a meeting engagement. The exercise for the 23d Infantry illustrated the employment of the reserve battalion in the reduction of resistance which had checked the advance of the regiment.

In these exercises the enemy's positions were represented by E and F field targets for riflemen, with suitable targets for machine gun and small cannon emplacements, and were placed where an opposing force would logically be expected to deploy under the situation. In order to emphasize fire distribution, a few targets only were visible, thus requiring leaders accurately to communicate to their units the enemy position.

Machine guns and howitzers were not restricted in the selection of firing positions, and when such positions were considered tactically sound and actual firing would endanger the deployed units, credit for fire effect was given.

The skilled utilization of cover and concealment was an important feature of the exercises. Umpires were assigned to each unit down to the platoon and were charged with keeping the exercise as realistic as possible, as well as with enforcing the necessary safety precautions. The results were satisfactory.

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Fort Snelling will be the location of a preparatory school for enlisted men from all stations in the VII Corps Area who wish to enter the United States Military Academy. The school will run from November 1, 1929, to March 1, 1930. The probable enrollment of the school will include from five to ten candidates from Fort Snelling and about twenty from other stations in the corps area. Men who attend the school will devote their full time to preparation for entrance examinations, which will be held in March.

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Col. W. C. Sweeney, commanding the 3d Infantry, recently presented Congressman M. J. Maas of Minnesota with a 3d Infantry regimental swagger stick and a copy of the following order:

HEADQUARTERS THIRD INFANTRY
Fort Snelling, Minnesota

October 11, 1929.

GENERAL ORDERS
NUMBER 13

For his great interest in Fort Snelling and the many services he has rendered the soldiers of this garrison the Hon. Melvin J. Maas, Member of Congress, is hereby elected an Honorary Member of the Third United States Infantry, and is assigned to

Regimental Headquarters. This designation is without obligation on his part or the part of the United States Army.

By order of Colonel Sweeney:

F. M. DYER,
Captain, 3d Infantry,
Adjutant.

OFFICIAL:

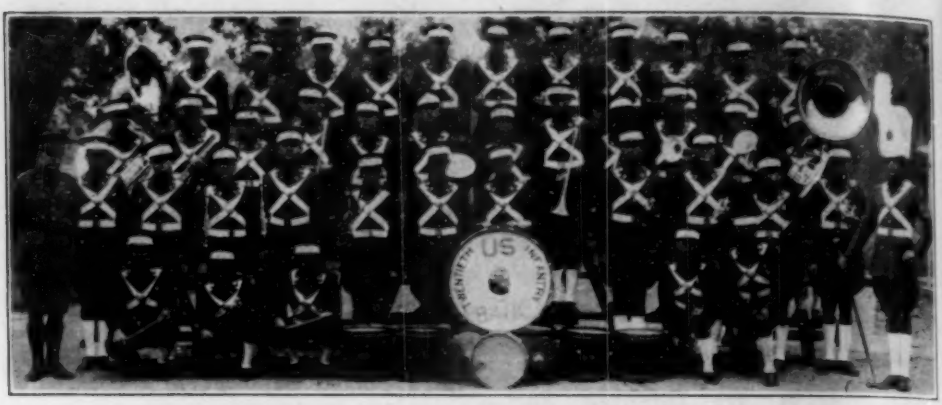
F. M. DYER,
Captain, 3d Infantry,
Adjutant.

Company H, 4th Infantry, Fort George Wright, Washington, won the 4th Infantry Regimental Machine Gun Trophy for the regular season 1929-30 by making the highest average enlisted score of 377.43. This high score indicates excellent instruction. Capt. George N. Randolph, the company commander, who is an expert machine gunner himself, is to be congratulated upon the excellent marksmanship.

Col. Frank W. Rowell, commanding the 7th Infantry, lent his assistance to the officers of the Clark County Fair, which was held at Vancouver, August 28 to 31, by sending a military exhibit of one escort wagon, one rolling kitchen, two machine gun carts with machine gun and equipment, one soldier's bunk with foot locker prepared for inspection, an automatic rifle, a rifle and bayonet, and several snappy 7th Infantry Regulars to give information to interested visitors. Crowds were attracted to the exhibit by the presence of the 7th Infantry band, which played adjacent to the exhibit every day.

An interesting feature of the 7th Infantry officers' schools at Vancouver Barracks will be the command and general staff class, which is to assist officers in preparing for Leavenworth. The course is based on the Command and General Staff Correspondence Course and has as instructors two graduates of Leavenworth. The junior officers are enrolled in a troop leading course which is to prepare officers for current work with the regiment and for the Infantry School courses.

The Radio Equipment of Headquarters Company, 2d Battalion, 13th Infantry, Ready for Inspection at Fort Davis, Canal Zone



The 20th Infantry Band All Dressed Up and Some Place to Go

In another part of these notes appears mention of the Chief of Infantry's Combat Squad from Company B, 17th Infantry. This company, Capt. T. G. Cherry commanding, has an enviable record for the past three years. It qualified one hundred per cent in rifle marksmanship in 1928 and 1929 with an average score for the period of 287.03. It also qualified one hundred per cent for the same two years with the automatic rifle. For the past two years a squad from Company B has won the Chief of Infantry's combat squad competition. In 1929 the Company won the N. R. A. gallery competition and placed second in the VII Corps Area. For the past year the company has held the Fredericksburg Guidon, the 17th Infantry's award for excellence. In athletics, too, the company has been outstanding. And finally, last but not least, 1st Sergeant Mollerstrom was a member of the 1929 Infantry Rifle and Pistol Team at the National Matches.

At the request of the Chambers of Commerce of Nogales, Arizona, and Nogales, Sonora, and General of Brigade Juan F. Rico, commanding the Mexican garrison in Nogales, Sonora, troops of the 2d Battalion, 25th Infantry, and band, Maj. George M. Halloran commanding, took a leading part in the celebration of Mexican Independence Day.

A reviewing stand was built squarely across the international line where the main thoroughfare crosses the border. Present on the stand during the programs were the governors of both Arizona and Sonora, Col. A. M. Shipp, 25th Infantry, General of Brigade Juan F. Rico, the consuls of both nations, and other officials and persons of distinction from both countries.

For September 15 the program included an exchange of courtesies between the military forces of both nations, drawn up in line facing each other on their respective sides of the border, and centered on the reviewing stand.

After the salutes, Mr. Ahumada made an address which contained many assurances of friendship for the American people and our great nation, whose efficiency and progress on things economic and political are a model for our less wealthy and advanced neighbors.

On September 16 Colonel Shipp and his staff were the guests of General

Rico at a gymkhana in Nogales, Sonora. The troops of the 16th Infantry Battalion (Mexican) gave a most impressive demonstration of the new high standard of appearance, precision, efficiency, and spirit, which has made itself apparent in the garrison across the border since General Rico took command. Companies numbered from one hundred and thirty to one hundred and fifty men. Uniforms, which were of khaki, were dyed to present a uniform color. Rifles and equipment were in very good shape. Bayonet drills, close and extended order drills, and silent manuals were demonstrated.

Similar ceremonies took place at Agua Prieta, Sonora, and Douglas, Arizona, with the 1st Battalion, 25th Infantry, and Mexican troops participating.

The 27th Infantry, Col. W. E. Hunt commanding, is known as the Wolfhounds, and well do these Wolfhounds live up to their name. By winning the baseball championship of Schofield Barracks for 1929, the Wolfhounds brought the Hawaiian Division baseball cup to a final resting place in the Wolfhound trophy case. There, with the boxing cup, the Wolfhounds show that they have been able to do twice what no other regiment of the division has yet been able to do at all, namely, to gain permanent possession of a three-year athletic trophy.

"Entire regiment very proud of you and your achievement in winning Crowell Match with a perfect score. Good luck in the team match."

So read a telegram from his commanding officer, Col. Harris Pendleton, Jr., to Corp. H. F. Hicks, Company F, 29th Infantry, a member of this year's Infantry rifle team.

The Crowell Match, open to all service men and civilian marksmen alike, consists of fifteen shots for record over the one thousand-yard range at Target C, or the service rifle of the competitor's nation, using any position without artificial rest.

The Reviewing Stand on the International Boundary Line at Nogales, Arizona, During the International Observance of Mexican Independence Day, September 16, 1929

Entered as one of the one thousand and four entrants in this match, Corporal Hicks "held 'em and squeezed 'em" to such good effect that he made his "possible," a seventy-five, and the only one made in this match. One point made a lot of difference, for there were eighteen 74's hot on his trail.

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The completion of the Infantry reorganization project at Fort Benning during the latter part of September permitted the 1st Battalion, 29th Infantry, to engage in its long deferred target season. The short range season prescribed, on account of the duties of the regiment with the Infantry School, has meant long hours and few holidays; yet the balmy October skies, with just enough zip in the air, have proven a wonderful aid to the 1st Battalion morale, and enthusiasm runs high among officers and men alike.

After two weeks of careful preparatory work in rifle marksmanship on Gordon Field, the battalion stepped out to fire its record course on McAndrew Range. As the sun disappeared in the West, Saturday, October 19, about sixty per cent of the battalion had completed its rifle marksmanship for the 1929 season. By candlelight, the results of the day's firing were checked, and it was found that the battalion had qualified as follows: Out of three hundred and fifty-six men firing, three hundred and fifty-three were qualified, forty-two as experts, one hundred and twenty-seven as sharpshooters, and one hundred and eighty-four as marksmen.

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Among the varied duties performed by officers of the 29th Infantry at Fort Benning, Georgia, is that of conducting a branch school for one hundred and seventeen Reserve officers who live in Columbus, Fort Benning, and vicinity. The work of conducting this school is being performed by Capt. Carl M. Ulsaker and Lieut. Joseph C. Kovarik, both 29th Infantry.

The success of the local branch school is due in no small part to help from the Infantry School, whose instructors are available for lectures and conferences to make the course as good as possible.

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Just to show that they played basketball in the Philippines, and that the team from Company A, 31st Infantry, won the Regimental Championship for the season recently ended.

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35TH INFANTRY ISSUES ATHLETIC POLICY

At Schofield Barracks, Hawaii, the 35th Infantry, Col. Ira C. Welborn commanding, has just issued a regimental athletic policy. Several paragraphs of this policy are especially worthy of note.

With a view toward keeping athletics of the regiment upon a sound business basis, an Athletic Council is formed, to consist of four officers, including the Athletic Officer, and in addition, the Regimental Sergeant Major.

Any coach may, if he desires, attend meetings of the Athletic Council. The Athletic Council will act in an advisory capacity to the Regimental Commander as well as to the Regimental Athletic Officer in all matters pertaining to the promotion of athletics within the regiment.

Under the heading of "Discipline" the following appears:

If the Athletic Officer, team coach, or team captain has difficulty with any athlete due to apparent failure to comply with training regulations, apparent disloyalty, sullen or surly conduct, he will make a report of the facts in the case to the Athletic Council of the regiment. Upon the receipt of such report, the council will consider the case and if the athlete is found guilty as charged, he will be suspended for a period of one year and be ineligible for membership upon any regimental teams. Such suspended athlete will be reinstated only by the council, as approved by the Regimental Commander. Any athlete on a suspended basis will not be permitted to transfer to another organization.

A Regimental Athletic Noncommissioned Officer has been designated as an assistant to the athletic officer.

Athletics in the 35th Infantry will also be governed by existing regulations of the War Department, Hawaiian Department, and the Hawaiian Division on the subject.

In official letters to their commanding officers, the Chief of Infantry has recently extended his congratulations to the members of the following squads, winners of their respective Chief of Infantry's combat team competitions:

Corp. Robert Brownie's squad of Company B, 17th Infantry.

Corp. Newton J. Rains' squad of Company A, 23d Infantry.

Corp. Robert E. Miller's squad of Company C, 26th Infantry.

Corp. William W. Mason's squad of Company E, 34th Infantry.

A ceremony of unusual interest held at Fort Douglas, Utah, recently was the unveiling of the "Rock of the Marne" monument. A huge boulder bearing a bronze plaque of the coat-of-arms of the 38th Infantry has been placed in a central location on the Fort Douglas military reservation near regimental headquarters.

The monument is symbolic of the dogged determination of the 38th Infantry which, under the command of Gen. Ulysses G. McAlexander, in the defensive action of the Marne in July, 1918, won the title of "The Rock of the Marne," and of the following citation from General Pershing in his final report: "A single regiment of the 3d Division wrote one of the most brilliant pages in our military annals on this occasion."

Reserves

C. M. T. C. Changes

CAPT. O. G. LYLE, 330th Infantry

OF course I realize that line officers should be seen and not heard, but I have felt for some time that a couple of changes in the C. M. T. C. regulations would enable the system to be of more benefit to both the candidates and

the Government. My reason for this article is to bring about a general discussion of these changes so that the experiences of a number of officers may be secured and a broader base obtained for their evaluation.

The two changes are:

(a) A five-year course.

(b) Enlistment required beyond the new third year.

Taking the five-year course, the new year would be a specialist basic year as the second year. This would accomplish several objects: In the first place the boys are entering at the official age of seventeen. I say the official age, as it is well known that they really enter as young as fifteen or less. A boy of seventeen will finish the course when twenty if he attends each year, and he can not be commissioned until he is twenty-one, no matter how efficient he may be. This results in a large loss of men who would accept commissions if tendered in camp at the end of their Blue year. I believe that it is one of the main reasons why so few commissions are issued to C. M. T. C. candidates. By adding the extra year they would be twenty-one and eligible for commissions.

A second reason is that after the first year under the present plan most candidates are made candidate noncommissioned officers, and I found that they had too little age and experience in their second year to make good as squad leaders. This was especially true of those who had entered at an actual age of less than seventeen. The extra year would give them both age and experience.

The most important reason of all is that, in the basic year, most of the candidates are absolutely inexperienced and there is not time in one thirty-day camp to teach them the ordinary close order drill and the special arms as well. They either get one and slight the other, or they get a smattering of both and are efficient in neither. Under the proposed plan they would get the real basic work, close order and the like, in the first year, and the special arms, in the second year. At the end of that year they would have a better understanding of the weapons of their arm, they would have one year more of training, and they would be better fitted to take up the work of a noncommissioned officer the next year.

Of course these views are largely based on the experience as a machine gun company commander this year, when we had no assistance from the Regular Army in training and when it was necessary to train candidates with C. M. T. C. corporals who had never had machine gun experience. Even a lot of the sergeants had no machine gun experience!

Concerning the enlistment at the end of the new third year, I know that the C. M. T. C. has the work of advertising and popularizing the Army, and that it has avoided the attitude that the attendance at a camp involved any further connection with the Army. Yet the inducement is held out that the course leads to a commission in the Reserve Corps. All too often this commission fails to materialize, and there has been a feeling that the Government has failed to make good on its promise. I think that this feeling is justified in that the training furnished is not sufficient to qualify the candidates, and, as a result, they fail.

I believe that the Government has

done all that can be asked when it gives three years in camp without entailing any obligation. After the new third year no candidate should be accepted who is not willing to enlist in some component of the Army. Such enlistment should not work any great hardship on the candidate, as neither the National Guard or the Enlisted Reserve Corps makes a great demand on their time. On the other hand, they offer the advantages of the training in the troop schools and the opportunity of taking the Army correspondence course. If the candidate enters the correspondence course at the end of the new third year and if he devotes a reasonable amount of time to it, he can complete the basic course in the two winters, before he completes the C. M. T. C. course. This would avoid the necessity of afternoon schools at camp, which interfere with the camp athletics and are a source of considerable dissatisfaction.

A candidate who was suitable material to start with and who has spent five summers in camp and has completed the basic correspondence course should have no trouble in passing the examination at the end of his Blue course and being commissioned at the end of camp. This should be done in a formal ceremony to show the others that there is a real incentive for completing the course—and there will be a greater percentage of returns to camp.

There are some objections to these changes, but I believe that the good features far outweigh the bad ones. Any questions?

World War Unit Histories

From the Notebook of "General Experience"

THE librarian of the U. S. Military Academy is anxious to have for the library of that institution a complete set of the histories of the World War organizations.

Histories of units are often published privately and it is usually impossible to know when and where they are published. The library of the Military Academy would be glad to receive copies of the histories of World War organizations—already published or when published in the future.

Books

Announcement of New Infantry Drill Regulations

On page 10f of this JOURNAL the Infantry Association offers for sale a new book. This book is Volume II of the War Department Basic Field Manuals. Its specific title is "Infantry Drill Regulations." The advertisement gives detailed information on the book.

In the present announcement there remains only to quote the conditions under which the Infantry Association is publishing an official War Department document.

AGO 62.11 BFM (6-19-29) Pub. 1st Indorsement.

WAR DEPARTMENT, A. G. O., June 22, 1929. To Chief of Infantry.

1. The text of Basic Field Manuals, Volumes I, II, and III, is approved for extended trial by the Service.

2. There is no objection to their being printed and distributed commercially to the Service by the Infantry Association.

3. The manuals contain in compact form the substance of regulations now in force and of others approved and under consideration but not yet published. While these manuals are tentative in nature, their use by the Service is authorized.

4. If printed this indorsement will appear as a foreword in order to define clearly the status of the publications.

5. The submission to the Adjutant General of criticisms and comment on the manuals is invited.

By order of the Secretary of War:

ALFRED J. BOOTH,
Adjutant General.

AMERICAN PISTOL SHOOTING, by Maj. William D. Frazer, Coast Artillery Corps, U. S. Army. E. P. Dutton and Company, Inc. 326 pages, illustrated. $5.00.

Major Frazer is one of the best-known pistol shots in the United States and an international shot of repute. From his twenty-six years of experience in competition shooting he has drawn the makings of a remarkably instructive and entertaining book. Its three hundred and twenty-six pages are full of enjoyment for the old shooter, and full of pleasure and help for the novice.

After a brief history of the first pistols and pistol shooting comes a description of modern pistols and their adaptability to the various kinds of shooting. Practically every standard make of American hand gun is described and, based on the author's experience, recommendations are made for their particular use. The discussion of free pistol shooting gives descriptions of several European makes of free pistols.

The important questions of form, holding and squeezing, aiming, and shooting against time, are all set forth clearly and comprehensively. Well worth reading by the excellent shot,

and absolutely invaluable to the beginner. There are instruction and information for both the revolver shot and the automatic pistol shot, and a chapter devoted to the subject of free pistol shooting.

There are chapters on aerial shooting and exhibition shooting. Police officers will find a special chapter for them, and also an interesting chapter on defensive shooting and quick drawing. Coupled closely to the last mentioned subjects are the chapters on holsters and ammunition. An entire chapter is devoted to the use of the automatic pistol. The man who wants to hunt with a pistol is not forgotten, and neither is the long-range shooter. The enthusiast to whom accessories are all important will enjoy the chapter on them.

Of special interest to everyone, and particularly to those upon whom rests the responsibility for coaching individuals and teams, is the section of the book devoted to shooting psychology.

The book is written in a most entertaining style and should certainly be enjoyed by all hand-gun shooters. It is recommended for all organization libraries, and for the libraries of all persons whose duty or pleasure makes them instructors in pistol marksmanship.

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SECRETS OF ESPIONAGE: Tales of the Secret Service, by Winfried Ludecke. J. B. Lippincott Co., Philadelphia, 1929. 250 pages. $2.50.

The author—a European—has presented a most readable account of espionage from the Seventeenth Century to the present time.

Those who enjoy vicarious adventure will find Secrets of Espionage full of the deeds of daring. Those who enjoy peeping behind the scenes will be rewarded by a reading of these tales of the secret service.

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UNIFORMS OF THE WORLD, by Fred Gilbert Blakeslee. E. P. Dutton & Co., New York. 1929. 447 pages, Illustrated.

Uniforms of the World contains descriptions and some pictures of the army, navy, diplomatic and police uniforms of practically every country which posseses an army or a navy.

The chapters on Ancient Costumes and Early Uniforms are of particular interest in that they present the evolution of the uniform.

The uniform of the United States Army is treated in great detail—from the recommendation of Washington "that the hunting shirt be adopted as the distinctive dress of the American soldier * * * a dress justly supposed to carry no small terror to the enemy, who think every such person a complete marksman," to the present.

Although there are a number of minor errors of omission and commission in his description of the uniform of the Army of the United States, the chapters on our Army uniforms are good. However, the book would have been greatly improved by more illustrations.

As a reference book for theatricals, pageants, and motion pictures, Uniforms of the World is an excellent work.

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ATTILA, the Scourge of God, by Marcel Brion. McBride, New York. 1929. 275 pages. $3.50.

Translated from the French by Harold Ward and Richard Glaenzer,

Attila is a historical study—a biography—of one of the ablest organizers of Europe.

At the age of twelve, Attila was one of the many youthful hostages of Rome, sons of distant monarchs, whose presence was a guarantee of the observance of treaties. This son of Mundzuk, who bore himself in Rome with the sulky, suspicious air of a wild beast, learned much of the Romans—a knowledge which stood him in good stead in later years.

There is one line in this absorbingly brilliant book which presages the fall of Rome: "Relieved of distasteful military service, from colonial expedition and frontier defenses, men could abandon themselves without constraint to commerce, to money-making. And this they did, becoming in time utterly indifferent to the campaigns, offensive and defensive, which others conducted for them."

The author makes us live in the camps of Attila. He shows us the intrigues and mockery of the courts of the Eastern and Western Roman capitals. This dramatic story of the ravaging Huns is in a class with Lamb's "Genghis Khan" and "Tamerlane." For the military student, it contains lessons in leadership, tactics and strategy.

The High Cost of Unpreparedness

From the Notebook of "General Experience"

THE expenses of the World War continued beyond the Armistice for nearly a year, due to the inevitable losses in returning to a peace status. According to Prof. David S. Muzzey, during the period from April, 1917, to October, 1919, the war cost the United States more than $35,000,000 a day, or $25,278 a minute.

The Infantry Association

Annual Meeting

The Annual Meeting of the United States Infantry Association will be held in the Infantry Building at 4:30 p. m., December 20, 1929. The election of officers and members of the Executive Council will take place at this meeting.

Election of Officers

Please indicate your vote on this ballot and send it to the Secretary, U. S. Infantry Association, 1115 17th St., N. W., Washington D. C., so as to reach him not later than December 15, 1929.

Vote for: one for president, one for vice president, seven for additional members of the Executive Council. Do not vote for same person for two offices.

Ballot

My vote for officers and for members of the Executive Council, U. S. Infantry Association, is as follows (put check mark before name):

For President

____Col. C. C. Allen
____Col. F. W. Bugbee
____Col. J. L. DeWitt
____Lieut. Col. C. B. Hodges
____Brig. Gen. G. S. Simonds

For Vice President

____Lieut. Col. J. R. Brewer
____Maj. S. B. Buckner, Jr
____Col. F. W. Bugbee
____Col. R. J. Burt
____Lieut. Col. E. Butcher
____Col. J. L. DeWitt
____Col. L. D. Gasser
____Lieut. Col. C. B. Hodges
____Capt. P. E. Leiber
____Col. J. F. Preston
____Brig. Gen. G. S. Simonds
____Maj. W. H. Simpson
____Col. D. L. Stone
____Col. W. W. Taylor
____Lieut. Col. C. H. Wright

NOTE: The present ballot does not carry the name of Maj. Gen. S. O. Fuqua as a candidate for any office. This action, concurred in by the Chief of Infantry, is based on the belief that the Chief of Infantry can best serve the Infantry by not being directly connected with the governing body of the Association, thus giving him a freer hand in the administration of his office and in the various activities of our arm.

Any officer who has already voted for General Fuqua for some office and who cares to change that vote to some other officer will please send a brief informal notice of his new vote to the Secretary.

(OVER)

CUT ON TEAR HERE

For Additional Members of the Executive Council

.....Col. C. C. Allen
.....2d Lieut. T. H. Allen
.....Maj. G. P. Baldwin
.....Capt. P. G. Balcar
.....Maj. L. J. I. Barrett
.....Maj. J. C. P. Bartholf
.....Lieut. Col. J. R. Brewer
.....Maj. S. A. Brown
.....Maj. S. B. Buckner, Jr.
.....Col. F. W. Bugbee
.....Col. R. J. Burt
.....Lieut. Col. E. Butcher
.....Capt. G. B. Campbell
.....Maj. T. B. Catron
.....Lieut. Col. A. D. Chaffin
.....Capt. W. J. Clear
.....Maj. R. C. Cotton
.....Col. E. Croft
.....Maj. E. P. Denson
.....Col. J. L. DeWitt
.....Maj. D. D. Eisenhower
.....Lieut. Col. C. B. Elliott
.....Maj. E. W. Fales
.....Maj. E. L. Field
.....Lieut. Col. W. S. Fulton
.....Col. L. D. Gasser
.....Capt. R. B. Gayle
.....Lieut. Col. H. S. Grier
.....Capt. F. B. Hayne
.....Maj. W. H. Haislip
.....Maj. L. S. Hobbs
.....Maj. W. H. Hobson
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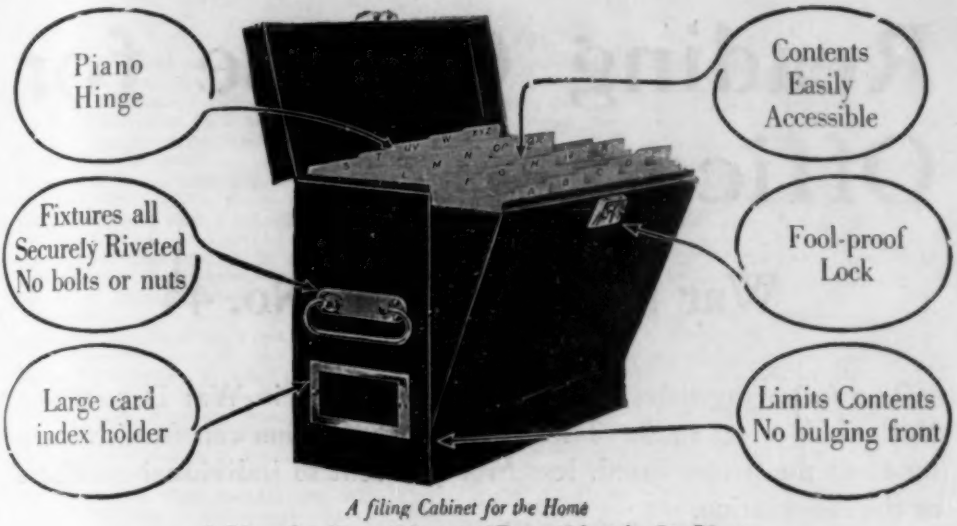
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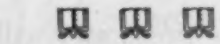

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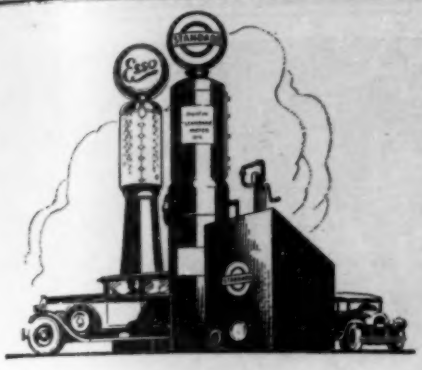

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1

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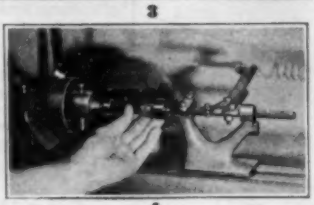
Photograph No. 2 illustrates the care with which the wads are first loaded in the shells so that they will be parallel to the base of the shell.

Photograph No. 3 shows how each shell is measured for a uniform length of crimp.

2

3



4

Photograph No. 4 illustrates how the crimp is finally applied. Note that the machine is semi-automatic in operation—the loaded shell being forced against the revolving crimping head by a constant weight applied through a system of levers.

The ammunition is now ready to be tested.

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The United States Infantry Association

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The Army Mutual Aid Association

THE Army Mutual Aid Association was born of necessity. In times gone by insurance companies considered Army Officers poor risks and refused to insure them or else charged them extra premiums. American Army officers, seeing the need of immediate help for their families in emergency, instituted this life insurance concern in 1879. Among its charter members were Generals Philip H. Sheridan, R. C. Drum, G. W. Davis, Arthur McArthur, W. R. Shafter, S. B. M. Young, and Emory Upton. The undertaking being largely a matter of experiment, an assessment plan comparable to "Term Insurance" was adopted and remained in effect until 1897 when the Association, having proven its worth, was reorganized as an "Ordinary Life" institution with insurance on the "Whole Life" plan.

FOR over a half century, this organization, constituted and directed by its Army Officer membership, has provided Army Officers with life insurance at rates averaging lower than those of reputable commercial companies, has consistently made immediate payments of benefits and never defaulted upon a payment nor been sued. There has never been serious criticism of the management of the institution, its accounts or investments, and its strongest advocates are its members and the widows it has helped. It has never been in financial difficulty in spite of money panics, epidemics, and wars. Those insured are select risks of varied age, rank and duty in the Army.

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INSURANCE benefits, when they become due, are paid instantly, one-half being transmitted by wire and one-half by mail. An outstanding feature of the Association's work is its help in preparing the pension and other claims for the bereaved parents, widows and families of its members. This service, built up through years of experience, assures the relatives of members that their rights as to Government allowances will be protected. The importance of this service may be appreciated by the fact that families of officers who were not members of the Association are known to have lost thousands of dollars because they failed to file timely claims and proper supporting evidence for pensions and other Government allowances.

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